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The·Northwestern·Miller

MILLING PRODUCTION SECTION

APRIL 8, 1942

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Production Highlights

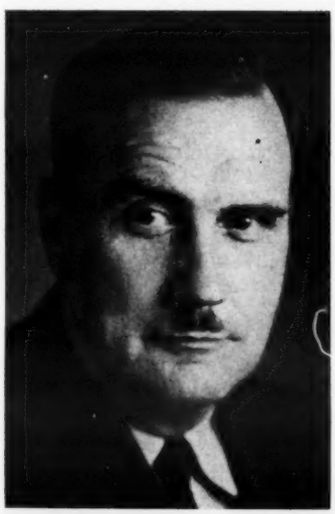
CONVENTIONING.—The first large "production" group to hold a convention this season will be the Society of Grain Elevator Superintendents, whose annual meeting is scheduled for Omaha, Neb., April 9-11. Paul H. Christensen, general superintendent for the Van Dusen Harrington Co., Minneapolis, and president of the society, has been working with the Omaha-Council Bluffs chapter of the association to develop a program centered around problems of elevator operation either created by or highlighted by the war. Headquarters for the meeting is the Hotel Paxton.

REVISING.—Because of increases in the cost of containers, the Millers National Federation last month announced an upward revision in flour package differentials. New stipulations also include the point that, unless otherwise specified at time of sale, the seller reserves the option to substitute cotton for jute, or jute for cotton, as priorities, allocations, etc., dictate.

INCREASING.—Increases in wages which brought minimums to 80c per hour were recently granted by three Buffalo feed mills. Also included in the new A. F. of L. contracts is a clause in which the employer agrees to review quarterly the "cost of living" index issued by the Department of Labor. A rise of 5 points would bring a 4c wage increase: 5 points decrease would lower wages by 4c, provided this did not fall below the 80c minimum.

RECOMMENDING.—Under the present law the Grain Products Industry Committee has power to recommend minimum wage rates at not less than 30c per hour nor more than 40c. At an executive meeting on March 11, the committee recommended the 40c minimum. If their recommendation is approved at a coming public hearing, 19,500 employees will be affected. Witnesses at the hearing stated that the cereal preparations industry generally had good wage conditions, but that in the South the higher minimum wage would result in a general 25% increase in wages.

RELIEVING.—Application of an A-2 preference rating to procure materials for the manufacture of cotton agricultural bags will make it easier for bag manufacturers to comply with millers' orders. The new priorities arrangement stipulates that the bag manufacturer can use the rating to purchase cotton fabrics only in such quantities as will be needed within 60 days after their receipt, and millers, although not required to apply the preference rating to their orders, must also certify that the bags they order will not, when added to the supply on hand, be greater than necessary for 60 days' use.



Paul H. Christensen, President of the Society of Grain Elevator Superintendents

TRAIL BLAZING.—Fast action characterized passage of the compulsory enrichment bill by the legislature of South Carolina March 12. Signed by the governor two days later, the legislation, effective Aug. 1, 1942, will require enrichment of white flour, self-rising flour, white bread and "white-whole wheat bread and/or flour," sold or manufactured within the state. Unenriched white flour may be sold to bakers who certify that it will be used solely for the production of enriched bread products. The ruling also does not apply to the manufacture of flour ground directly for the wheat producer on the toll system. Enrichment standards set are those promulgated by the Federal Security Agency, and the specifications may be changed at any time to conform to new rulings by the agency. . . . The southern state's move was welcomed by government authorities, who felt that developments in connection with the bill would serve as a guide for other states to consider.

SELLING.—To insure a sell-out at a recent basketball game between the Great Lakes naval training station and the University of Kentucky, Ballard & Ballard Co., Louisville, purchased 400 reserved seats for its employees and members of their families.

PREDICTING.—With present outlook indicating a big wheat harvest, a number of Kansas grain men are predicting open air storage in central and southwest Kansas after the next harvest. Bins, they point out, are fuller now than at the same time last year, and material shortages make it difficult to build many additional facilities.

PROHIBITING.—From March 23, the manufacture of any flour other than an 85% extraction "national wheatmeal" was prohibited in Great Britain. At present, mixtures of white flour and wholemeal are allowed, but after April 26 a special license will be necessary for the sale of white bread. Total use of the national flour will not be enforced until white flour stocks are exhausted.

Volume 210 • Number 2

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LET'S LOOK AT FLOUR

● By Edgar S. Miller
Technical Editor
THE NORTHWESTERN MILLER

A YEAR or two ago a prominent member of the Association of Operative Millers addressed an annual convention of that organization and made at least one statement which seemed to savor strongly of heresy. He said, in essence, that "the machine age" had come to milling many years before, and that the industry had "progressed beyond it."

Probably many who heard or read this statement and gave any considerable thought to it wondered a little about its meaning, for there is a rather general impression prevalent that full mechanization is just another name for the "mass production" about which Americans are sometimes inordinately fond of boasting. But further utterances of this same convention speaker (whose conclusions were based upon the studied opinion of a milling executive as well as a man with first-hand knowledge of mill operation) should have made it plain that he was not thinking in terms of mass production. When he suggested that the milling industry had "progressed beyond the machine age" he meant just that, for he explained his meaning when he said that the most important factor in modern milling is the trained intelligence of the mill operative.

There is considerable evidence that most people, including milling executives, nutritionists and even flour and baking technologists, associate the modern process of milling with the acme of mass production. In substantiation, consider the theory behind the supposition that the ash content of a flour is necessarily in ratio to the "percentage of extraction" —that is, to the number of pounds of floury product obtained by milling 100 lbs of wheat. Or that percentage of extraction is a reliable index of the content of thiamin, for example, of the product extracted. Consider, also, the supposition that the floury products of an experimental, or testing, mill are identical (or nearly so) with products of comparative particle sizes made on a commercial mill if they represent equivalent percentages of the weight of the wheat ground.

Such a conclusion must be the product of an assumption that the properties of all flours milled from wheats with identical properties are in accordance with the dimensions of the individual bodies (particles) of the finished products. If this were true, flours could be manufactured by mass production methods, as are steel parts of engines or guns or tanks. These are machined accurately and automatically, and the men who service the machines are largely required merely to keep the machines in operation. They are not concerned with the properties of either the steel to be machined or of the finished parts. In many instances they are not even specifically concerned with size—that is, with the accuracy with which the work is done. The properties of the metal were determined long before the machining began, and they are practically invariable. The accuracy with which automatic machines do their work is the responsibility of the men who designed and built them, and barring accidents, it is virtually unfailing. . . . This is mass production.

A commentator in a popular news magazine recently devoted a column or so to a definition of mass production that was excellent—as far as it went. Among other things, it was brought out that only a little while back each individual side arm manufactured in a certain shop was given 45 minutes of one man's personal attention after it was completed, to insure its proper operation as a finished piece of armament. Finally, a hard-boiled production manager, determined to eliminate every unnecessary move, said: "Give me perfect tools and I'll cut those minutes to seconds." The tools were forthcoming, and that production manager made good on his promise. . . . This, too, is mass production.

Only a little of the most elementary sort of thinking, however, should make it plain to anyone who knows or cares anything at all about the nature of wheat that the only significant thing the milling of flour and the manufacture of rifles have in common is mechanization—the substitution of mechanical power for the power of muscles in moving objects about, in overcoming friction, and in altering the sizes and shapes of bodies upon which operations are performed. The chief difference (remembering that the "tools" of the miller are the machines used to rupture the wheat berries and divide the products of the action into two or more separates) is in the materials to be processed. As has already been pointed out, the properties of the metals to be machined in the making of guns are definitely predetermined and practically unvarying. This is certainly not true with regard to the wheat to be milled.

There is an excellent opportunity right here for objection to this statement, and it may be positively disputed, on the grounds that thousands of able men devote their full time to determining the physical and chemical properties of wheat, year in and year out. Hundreds of thousands of operations of various kinds are carried out on different parcels of wheat to establish the class, subclass and grade of each, the physical tests including test weight, percentage of damaged berries, percentage of foreign materials, moisture content, etc., etc. In addition, chemical procedure is employed in determining the percentage of contained protein and possibly the enzymic status. But all this supports, rather than weakens, the position taken.

In the first place, it must be remembered that wheat samples used for testing purposes are made up of many individual berries. Even superficial observation of the manner in which the various berries react to the cutting action of a fairly dull knife will reveal this.

It is difficult to visualize two substances more unlike than coal and flour. However, chunks of coal and the material from which flour is made have one thing in common: the manner in which they react to reduction. The parallel of these processes is an interesting sidelight on the operative miller's job.

It would be reasonable to assume, if assumption were not made unnecessary by irrefutable evidence, that with the same amount of force available, whatever offers least resistance to reduction will be reduced most in a given period of time. . . . Upon this fact is based the somewhat revolutionary conclusion that the reducing and sifting operations carried out in the process of milling flour make it possible not only to separate endosperm materials from bran-coats and germs with some fair degree of success, but to effect also what amounts practically to separation of wheat berries having different physical and chemical properties by effecting the separation of particles *derived from different endosperms.* Flour streams from the early reductions may thus be largely the products of wheat varieties quite different from the varieties represented by the flour streams produced by later reductions. To take advantage of this, or to make compensations, when desirable, is not a function of an automatic machine.

Moreover, individual berries vary in size, shape and density, and any test made, using a number of berries, must therefore be indicative of the average of all the berries.

Steel to be used in the manufacture of gun parts, or anything of that nature, may be composed of several different elements, but as it goes to the machines to be operated upon it is a homogeneous substance. Which is to say that any tiny particle of it, even if it would weigh no more than a fraction of a microgram, is exactly like any other particle, no matter where located. On the other hand, there are not only wide differences in the physical and chemical properties of each individual wheat berry that is a part of a gram, a pound or a bushel of the grain; still wider differences exist within each berry.

Does all this actually mean anything in connection with the milling of flour? Well, let's look into that.

Students of milling generally agree that the process of milling is dependent upon the fact that there are inherent differences in the physical characteristics of the bran-coat, the germ and the endosperm of the berry to be milled. Milling has been called a process of purification, since its object is to separate the pure endosperm from all impurities, including bran and germ as well as impurities extraneous to the berry. Extraneous impurities may consist of weed seeds of many kinds; of sand and pebbles; of smut and various sorts of filth. For their removal many types of grain-cleaning machines are used, and the cleaning process must be completed, if at all, before the milling process proper—the breaking of the wheat berries and the subsequent reduction and separation of endosperm particles released—begins.

It is well understood that while the job of wheat cleaning can now be done in a degree pretty closely approaching perfection, providing a sufficient amount of modern equipment is intelligently used, the process of separating pure endosperm particles in the form of flour from particles composed of bran or germ leaves much to be desired. There can be little doubt that an average sound and reasonably plump wheat berry consists of about 85% endosperm and 15% bran-coat and germ, and it may be said that perfection in milling should produce flour composed solely of pure endosperm in an amount equal to 85% of the weight of the wheat. Of course this has never been done, and, considering the difficulties encountered in getting as much as 70% (instead of 85%) of the grain into the sack in the form of reasonably pure flour, it may be doubted that it ever will be done. Yet it is a goal toward which the miller must continually strive.

It should not be taken for granted, however, that it is only the relative degree of purity of a flour, coupled with the ratio of its weight to the weight of the wheat, that is of any significance. As has been previously pointed out, there are wide differences in the individual berries that go to make up the mill-mix. Reference was made chiefly to physical differences, but it must be remembered that in some degree physical differences give positive evidence of chemical or biochemical differences.

For example, it is certainly true that one berry may be softer than another principally as a result of biological changes brought about by environment. Again, it is well known that a berry of soft wheat differs chemically from a berry of hard wheat in percentage of contained proteins, if in no other way. No one will dispute the statement that durum wheats differ from bread wheats both with respect to physical characteristics and chemical properties of their proteins. It would be reasonable to assume, if assumption were not made unnecessary by irrefutable evidence, that with the same amount of force available, whatever offers least resistance to reduction will be reduced most in a given period of time.

Upon this fact is based the somewhat revolutionary conclusion that the reducing and sifting operations carried out in the process of milling flour make it possible not only to separate endosperm materials from bran-coats and germs with some fair degree of success, but to effect also what amounts practically to separation of wheat berries having different physical and chemical properties by effecting the separation of particles *derived from different endosperms*. Flour streams from the early reductions may thus be largely the products of wheat varieties quite different from the varieties represented by the flour streams produced by later reductions. To take advantage of this, or to make compensations when to do so is desirable, is not a function of an automatic machine.

While further evidence originating in a flour mill could be offered to substantiate the soundness of the conclusions set forth, it is sometimes more convincing to go into an entirely different field for a convincing analogy. Let's browse around a little. . . . Solid fuel is used in one of the most modern systems of producing economical power. High-pressure and high-temperature steam is em-

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ployed in this system, and coal in powdered form has been found very efficient. High furnace temperatures are required, of course, and since the fuel is sprayed it is important that combustion be as nearly instantaneous and complete as it is possible to make it.

Impurities of various sorts are usually present in coal as it leaves the mine, and the steps taken to remove them may be likened in purpose to the miller's efforts to separate from wheat endosperms all the things recognized as impurities—dust, smut, spores *and* fragments of brancoats and germs. That the miller is not as successful in this as the coal processor is in accomplishing his purpose is immaterial to the strength of the analogy, for that part of the process that is truly significant is concerned with the obtainment of separates of virtually pure coal, each varying greatly in characteristics easily measurable, from the same vein. That the separates actually represent coal "varieties" intrinsically different is proved by their different contents of heat units, as well as by the percentage weight of the residue obtained from each separate when subjected to identical combustion tests.

No doubt most of us know even less about how coal is formed and why than we do about the processes of nature which operate to produce a rosy peach and a pale yellow apple on two different trees growing side by side in the same soil and receiving an equal amount of the very same sunshine, but the geologist and the botanist could tell us quite a lot about both if we were able to understand their language. We might also be able to acquire considerably more worthwhile information about wheat than many of us have now if we could learn to ask questions as well as to understand. But in the absence of more extensive knowledge concerning wheat varieties and types, and how they got the way they are, let's turn to a practical mineralogist who has offered certain positive information about the coal processed in one particular instance. That information may add usefully to our understanding of the reductions and separations of milling.

This coal came from one vein, which was about 4 feet thick. After the removable impurities had been extracted from the partially crushed coal, it was dried preparatory to pulverizing and sifting. Four screens were used, all with very small apertures but each succeeding set smaller than the set preceding it. The exact numbers have now escaped my mind, but the man who told me about it gave me essentially this information:

The four separate siftings (probably through wire screens about 175, 200, 225 and 250 meshes to the linear inch) were found to differ greatly in heat-producing value. At first it was believed that this was due entirely to differences in particle size, with consequently differing degrees of approach to complete combustion, but it was later proved that when the larger particles were reduced in size until they would pass through the screen with the smallest apertures, their properties were unchanged. This was true of each of the separates through 175, 200 and 225-mesh screens, respectively, (if those numbers are not mistakenly used), and there was room for but one conclusion. That was that the vein was composed of at least four different coals. The mineralogist confirmed this conclusion by drilling through the four-foot vein. He found that there actually were four strata each not only carrying a different number of heat units per pound, but each possessing definitely different degrees of hardness.

Now there is probably no doubt in the mind of any practical miller that there is usually more than one type of wheat in most of the mill-mixes being ground in the United States. By "type" is here meant the sum total of the chemical and physical properties of individual berries *at the time of milling,* and not merely those inherent and which might have been held in their entirety under ideal conditions of growth, harvesting and storage. Naturally, the berries of each type will react differently to the action of break rolls, and their products will respond differently to the action of the sieves which follow each breaking and each reduction. How differently? It is quite impossible to predetermine, either by chemical analysis or by any other method of mathematical measurement. And that is one reason why milling is not well adapted to "mass production" methods.

There are many other reasons, some having the same root and others concerned with the varying response of any and all types of berries to varying physical environment, including conditions of heat, moisture and temperature as affected by both prevailing weather and by the transformation of energy to heat in the process of getting work done. A fact which does not always receive full consideration is that even the chemical characteristics of flours are often greatly influenced by the physical environment of the intermediate products of milling. To this may be principally due the often expressed and sincere doubt that the properties of flours are influenced by the manner in which they are produced.

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The Control of Infestation—A Daily Job

NATION-WIDE surveys on a multitude of subjects to the contrary, we doubt that there is such a person as a "typical man." And we're certain that from all of this journal's readers it would be impossible to pluck any individual and call him a "typical reader." That's why we plunge without hesitation into a conversation between MILLING PRODUCTION and a personality we shall identify as the "Typical Reader," or "T.R." Let's plunge:

T.R. Here it is—spring! And what does a milling journal turn its fancy to? I'll tell you—bugs. Articles about bugs! Well, I suppose you do it because you think both your readers and your advertisers want it, but tell me frankly: is there anything *new* you can tell us about insects? Look—we millers don't like bugs. We know that infestation cannot be tolerated in our products. And we know something about getting rid of them, too. So what's the use of another article on insects? That's what I want to know.

M.P. Confidentially, we appreciate how you feel. In the spring—of all times—it's no fun to turn one's thoughts to the mating customs of *insects*, and the results thereof. As a matter of fact, however, we don't wait until spring to discuss this subject. You'll find bits of pertinent information about it on many of our pages printed throughout the past months. If you went back over these issues, incidentally, you'd see one of the reasons why we're talking about insect problems now: almost every month our news columns carried information about government action in connection with flour infested or contaminated by insects. Sometimes the mills have been found at fault; at others, the products have been known to become infested after leaving the miller's hands. But the upshot has been that Food and Drug Administration officials are tightening their inspections. Millers whose plants are found to contain any appreciable infestation are going to have a difficult time trying to convince the authorities that flour manufactured there and later found to be infested didn't contract that infestation in the mill itself. And in—

T.R. Pardon me for interrupting. But I wanted to remind you that I've seen those items and from my own experience and the experience of others I've met at millers' meetings I'm well aware of the stepped-up campaign against buggy products. It's all right with me, too. What I'm getting at is this: is there anything *new* you can tell us about methods of insect control? I've been getting along pretty well now for a good many years—

M.P. It's our turn to interrupt. You're a "typical reader" (subject to the foregoing qualifications), and therefore a typical miller. We'll bet you a copy of our favorite milling book against a sack of your flour that you go out into your mill today, dig around a bit, and come up with some healthy specimens.

T.R. Sure I can. It's been a while since I fumigated. Can't expect even a "100%" kill to last forever, can I?

M.P. Unfortunately, you can't. Equally unfortunately, you're probably not very certain that your last kill *was* total. It can be, but not unless you use really good materials, use plenty of them, and use them correctly. The problem, in fact, resolves into this: anything less than a complete kill during fumigation is putting at least one strike on you the day your mill is aired out. And another strike is coming fast—every time you bring wheat to the mill, and every time one of the boys wheels in a bale of used sacks, you're running the risk of starting a complete new insect population. In other words, it's a never-ending job. You've got to watch it all the time.

T.R. Well, I've been using what I think are good products for a long spell now, and I'm satisfied with them. Naturally, I don't expect to keep my plant entirely free of bugs constantly—that's asking too much. What would you suggest?

M.P. First of all, a thorough and continuous job of housekeeping. Next, a system of fumigations with a recognized insecticide—used in large enough amounts, and with enough care, to obtain the kill of which it is capable. Next, a stringent practice of killing infestation in grain and incoming sacks. Finally, the spray gun habit. Sprays won't kill all the bugs in your plant, and fumigations can't be done every day. That's why periodic fumigation, plus closely spaced spray gun hunts, is a good combination.

T.R. That sounds expensive. I think I use enough fumigant, but I certainly don't want to waste it. After all, this sort of thing can be carried too far, from the standpoint of economy.

M.P. Of course there's no sense in waste. But let's suppose you spend X dollars on a program of insect control which you'll admit isn't quite as good as it might be if you spent a bit more

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on it. Perhaps one of these days you'll find a 500-bbl shipment of flour confiscated—condemned because of infestation and sold for feed. You'll have an appreciable dollars and cents loss plus an even more costly one—you'll have hurt your standing with the customer who ordered the shipment. And for a little more effort and material you could have insured yourself against any such wholesale infestation.

T.R. I suppose that's right. Well, since I'm "typical," I must admit that I've tried a little bit of everything in the line of fumigants. Seems pretty hard to choose the one that's best. Maybe you could help me out on this score.

M.P. We're no expert on fumigation. And choosing "what's best" must be a difficult or, rather, impossible job, because those who *are* experts have never pinned that label on to any one product. From material originating with Department of Agriculture entomologists, however, we have learned this: there are a number of highly effective fumigants. Some are useful for several purposes and can generally be considered "all around" materials. Others are highly efficient under certain circumstances, while under different ones their use might not be recommended. Still others are not good, for easily understandable reasons. Most obvious is that certain gases are not toxic to insects. Many substances are condemned because, even though they are toxic, they are explosive and inflammable.

What do you say we take the floor from here on and give brief outlines of the more common fumigants? The opinions won't be ours, but those of men who have, without bias, worked with them all. That'll give you something to go on.

T.R. Shoot. The floor is yours.

M.P. Okay. We'll deal only with the four most common types of fumigants. These are chloropicrin, hydrocyanic acid gas, methyl bromide and a number of branded gases which usually use as their base a mixture of ethylene dichloride, carbon tetrachloride and certain other effective substances. While all of these are "general" fumigants, they each have distinctive properties which make them more adaptable to some circumstances than others.

"M.P.," of course, would be plagiarizing if it attempted to be technical about these various gases and their uses. For the miller who wants to make a deep investigation of their properties we can recommend many publications. For the one who desires only to use a good fumigant effectively, we offer the following surface information. The four gases mentioned are all sold by reputable manufacturers whose continued sale of them to mills obviously depends upon their success in application. For this reason, the miller should look to these manufacturers for factual data concerning the application of the various compounds.

On the surface side of the matter there are certain points that must be well understood. All gases toxic to insects are harmful to man. Some are much more toxic than others. Of the four mentioned, the ethylene dichloride and carbon tetrachloride mixtures are the least harmful to humans. This simply means that a man can be exposed to higher concentrations for longer periods without extremely serious effects: it does not mean that the gas may be used indiscriminately. Proper precautions must be followed with any of them. This includes not only the proper sealing of the plant or space to be fumigated (and any other measures specified by the local authorities) but the correct use of gas masks when needed. The canister on a gas mask absorbs the toxic portion of a gas. Each different gas requires a special type of canister. Each canister will absorb so much, and no more. Its life depends upon the toxicity of the gas and the concentrations to which it is exposed. And it is a serious error to attempt to use a canister *too* long. Wearing of a mask can sometimes give a false sense of security.

Because of these facts it is desirable, particularly with the more toxic gases, to put fumigation in the hands of men trained to do the work. If circumstances permit, a mill may have its own fumigating department, or at least a man whose principal duty is to superintend fumigations and conduct a constant spray campaign during periods between fumigations. Also, there are professional fumigators in the country who will take over the entire job.

Many mills, however, can't afford to keep a man for this work alone. Still, it is practical to make use of regular employees when fumigation time comes. It is for them that the warnings about the use of these common gases are reiterated.

Now back to the gases themselves. Because it is one of the newer ones, we'll discuss methyl bromide first. Methyl bromide has an extremely low boiling point—about 41° F., which means that it vaporizes easily. It has great penetrating power, making it a highly useful fumigant for treatment of bags, bagged

(Continued on page 25a.)

HOW LONG SINCE YOU LOOKED FOR A PLACE ON THIS BANDWAGON?

HAVE you noticed how the consumption of pre-leavened specialty flours has been gaining in recent years?

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You will find that recent years have also brought consistent improvements to specialty flours . . . so that today you can offer your customers better, more uniform flours than ever before. And you will find Monsanto an excellent place to start your investigation. Here sixty-five years' experience in the leavening field and a newly enlarged baking laboratory are at your service.

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As long as housewives themselves make mistakes you will have complaints blaming your flour for their failures.

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That's where the HT baking laboratory proves its worth.

The first baking laboratory ever established by a phosphate producer to serve the milling industry, the HT laboratory has been helping millers solve their knotty leavening problems for twenty years. It has recently been enlarged and much new equipment has been added. Its staff of trained baking chemists are authorities in their field with long milling experience to their credit.

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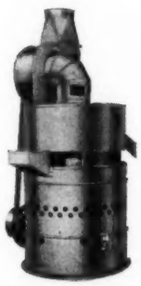
The HAAKY SEALED FLOW ASPIRATOR puts every cubic inch of air it handles to work. Its operating efficiency is high because it is so designed that there is no "lost motion" of air. It is compact and complete, and is capable of making distinct separations of dust, chaff and screenings. Its automatic "air seal" is unique.



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ANALYSES

FLOUR-FEED-WHEAT

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"BISCUITS" and *BISCUITS*

STATEMENTS attributed to prominent nutritionists and asserting that the benefits of enriched flour are "wasted" when such flour is used for "biscuits" must have their origin in a confusion of names. Years ago, Americans were on speaking terms with "soda crackers" and bought and ate them extensively, but one fine day some enterprising advertising man was struck by a bright idea. He argued that the public could be induced to buy an identical product still more extensively if it were packaged and divorced from the common name it had borne hitherto. Perhaps he had once visited England or had talked with someone who had. In any event, as a result of his sparkling idea the lowly soda cracker became a "biscuit" with a brand name.

No one can have any reasonable objection to this enterprise, but the confusion which apparently resulted from the change of names hasn't done anybody any good. In the most recent English literature dealing with flour and bread, soda crackers are called "biscuits" invariably. Home baking, aside from loaves and rolls leavened with yeast, is, according to Dr. D. W. Kent-Jones, author of "Modern Cereal Chemistry," confined to the making of "cakes, scones, puddings, pastries, etc.," and he states that "self-rising" flour is largely used. The products have no more relation to British "biscuits" than American "hot biscuits" have to our own soda crackers, by whatever name they may be called.

It is not difficult to understand, however, how a nutritionist might get slightly mixed up by all this. None of them have either the wish or the incentive to mislead the public, but if they do not know the difference between soda crackers and the chemically leavened American biscuits to which the newspapers referred, their education with respect to American foods is incomplete. There is a particularly strong reason why errors of this nature should be avoided now, with "enriched white flour" (approved by the nutritionists themselves) coming into general use.

A soda cracker, even when it masquerades as a "biscuit," is of a nature slightly alkaline. It may be supposed that there is a good reason for this, for it appears that the manufacturers deliberately make it that way. Sodium bicarbonate (baking soda to most of us) is used in cracker making. Jan Micka, of the research department of the United Biscuit Company of America (which manufactures and markets not biscuits but crackers, cookies, et cetera) stated in an article read at an annual meeting of the American Association of Cereal Chemists that the leavening of crackers (note that he called them crackers) was due not to chemical reaction but principally to the action of yeast. The baking soda is used to stop the yeast's activity. In tables accompanying Mr. Micka's paper as it was published in the journal *Cereal Chemistry* (Vol. 18, No. 4) it is shown that of some 30 samples of crackers analyzed all were "on the alkaline side," indicating that some of the soda was not neutralized.

Without exception, men who know vitamins are agreed that thiamin (vitamin B_1) loses much or all of its potency in an alkaline environment. Thus, when soda is used in baking with enriched flour—or with any flour containing any quantity of thiamin—the value of the thiamin is lessened or lost *unless the alkalinity of the soda is completely neutralized.*

There is no sodium bicarbonate in properly made biscuits (American brand), because such biscuits are not "on the alkaline side," the alkalinity of the sodium bicarbonate having been completely neutralized. Biscuits made with self-rising flour contain no free soda if the flour was properly prepared—and there is no reason in the world for its not being properly prepared.

An excess of alkali in biscuits has always been known to be something that should be avoided. In using baking soda and sour milk for leavening purposes it is difficult to judge the actual acidity of the milk, and when it is less than expected, the housewife's reputation as a cook suffers, for the resulting biscuits are yellow and "smelly." Even this can easily be avoided by adding a small amount of monocalcium phosphate to the otherwise "plain" flour used. Certainly it is easy to avoid alkalinity in products baked from self-rising flour by the same means, and with this precaution taken, the retention of thiamin in "hot biscuits" compares favorably with the retention in fresh yeast breads.—E. S. M.

SOLVENTS

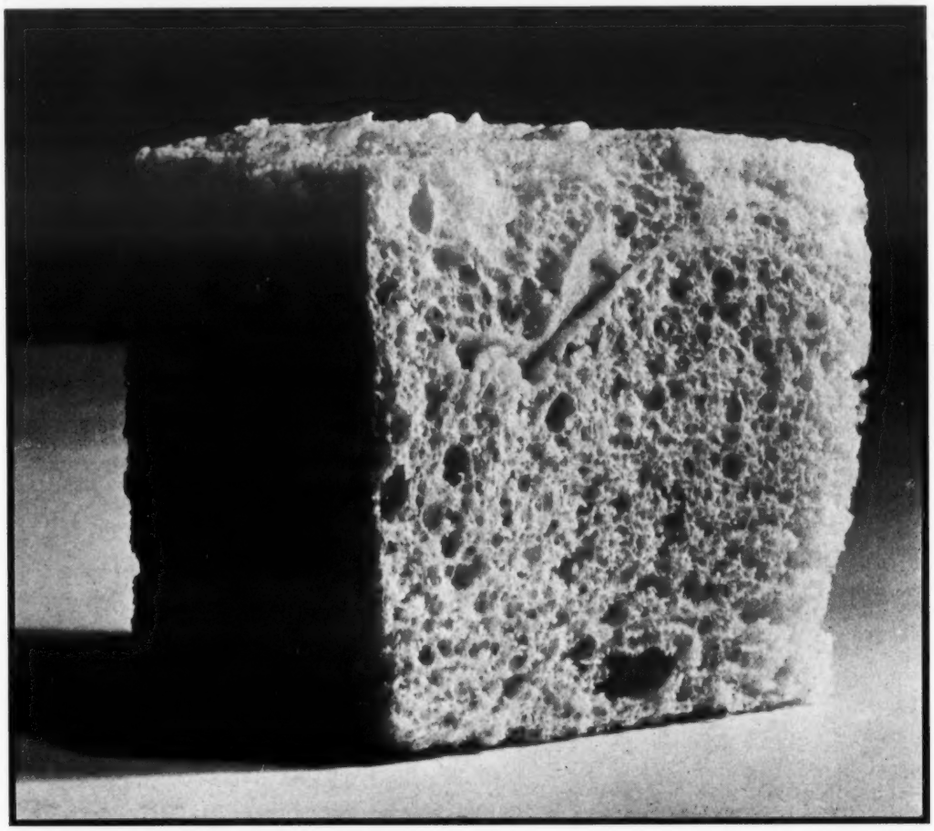
WATER is an important substance in many ways. One of its most familiar uses is as a solvent. A solvent (it is sometimes called a "dissolvent") is defined as a substance, usually a liquid, which is suitable for or employed in *dissolving* some other substance. A substance dissolved is said to be "in solution" in a liquid when it is distributed uniformly through the liquid in a state of such fine division that its particles cannot be seen and do not "settle out" on standing. When the particles are visible, they are said to be "in suspension." A liquid used to dissolve a substance being called a "solvent," the dissolved substance is called a "solute," while the two together form a "solution."

Brine is a good example of a solution of common salt (sodium chloride) and water. If this solution is examined closely it will be found that an amount of the solid may be introduced into a measure of water without a corresponding increase in the volume of the liquid. The weight of the solution, however, is equivalent to the combined weight of the solvent and the solute.

The salt particles are invisible, and they will not "settle out," as is demonstrated by the behavior of sea water. However, if the water (the solvent) is changed from a liquid to a vapor, the solute will be left behind. Again, if more salt than the liquid is able to hold in solution is introduced, all of it does not "dissolve"—strictly speaking. The excess will settle when opportunity is afforded.

The Colloidal Structure of Bread

By C. O. Swanson
Department of Milling Industry
Kansas State College



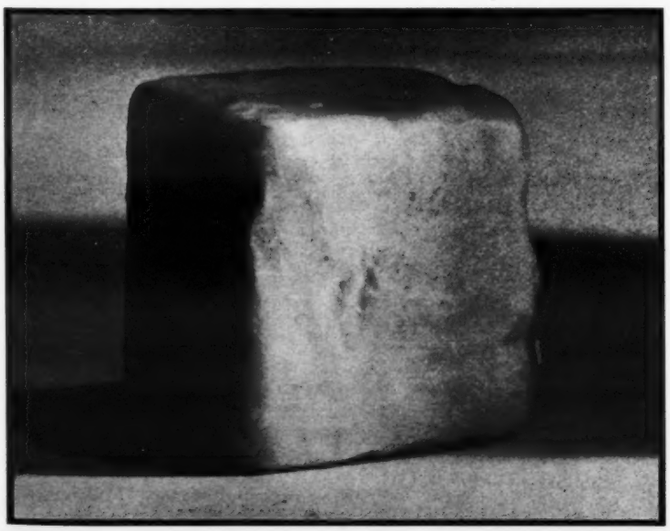
THE UNIVERSAL LIKING OF BREAD AS A FOOD IS DUE IN A LARGE MEASURE TO ITS GREAT SURFACE AREA IN PROPORTION TO VOLUME AND WEIGHT. THE THINNESS OF THE CELL WALLS CREATES THIS LARGE SURFACE.

AN examination of bread crumb will show that it consists of thin cell walls which inclose tiny bubbles of air. These cell walls form a continuous, three dimensioned system, and their actual mass is small compared with the volume of the air bubbles. The arrangements of the cell walls in reference to the bubbles place bread among colloid systems.

The word colloid suggests colloid chemistry. Colloids have sometimes been associated with jelly-like substances, but they take in a much wider field. No modern branch of science has expanded more widely from former concepts than that pertaining to colloids. While the usual association of colloids is with chemistry, the field includes much more.

Colloids can be and are made to include all the substances encountered in every-day life. The ideas developed in connection with colloids are particularly valuable in a clearer understanding of any of the problems connected with bread, flour, dough, and even the milling of wheat.

The most distinctive physical property of bread is the large amount of surface, external and internal, in proportion to the mass. This gives large areas for the action of digestive enzymes, and is one of the reasons for the high value of bread as a food. The reactions of enzymes take place on surfaces. Therefore the more surface the better they can work. One purpose of chewing food is to produce more surface for the enzymes to act upon. The universal liking for bread as a food is due in a large measure to its large surface area in proportion to volume and weight. This comparatively large area also makes bread the best vehicle for conveying other foods to the mouth, giving butter, jam, jellies, et cetera, a good place to "ride."



BREAD HAS ABOUT SIX TIMES THE VOLUME OF DOUGH. THE ACCOMPANYING CUBE OF BREAD WAS BAKED FROM A PIECE OF DOUGH APPROXIMATELY THE SIZE OF THIS.

A dough made from 100 grams of flour will have a volume of about 150 cubic centimeters. When this dough is fermented with yeast and baked, the volume of the loaf will be about 900 cc, depending on the amount of protein and its quality. Thus the bread has about six times the volume of the dough. It is this expansion which produces the large amount of surface. A careful look at a bread crumb will reveal the thinness of the cell walls and hence the large extent of surface.

The three common forms, or phases, of matter are solid, liquid and gas. Bread contains matter mostly in two forms, or phases: solid and gas, for the water which constitutes about one third of the weight of fresh bread is so firmly adsorbed on the surfaces of the starch granules and the protein material that the two together behave as a solid. The surfaces in bread are the boundaries between solids and gas, in this case air.

All surfaces are boundaries between the three common forms or phases of matter which are designated as solids, liquids and gases. The distinctive property of a solid is rigidity of form. That is, the shape and outline is not readily changed. This means that the molecules in a solid cohere so strongly to each other that except for a small vibratory motion they maintain their positions and distances relative to each other. It is this force of cohesion which confers strength to solids, and but for the persistence of this force, all materials would crumble into gases. Liquids, in contrast with solids, have great mobility of form due to the freedom of their molecules to move about among each other. Molecules in liquids, however, tend to remain the same distances apart, and hence the volumes of liquids are relatively constant. The molecules in gases have such freedom that they continually change their positions and distances. Hence gases have great mobility of both form and volume.

A surface is the boundary where two phases meet. The paper, the table, the floor, the walls, the furniture, form boundaries between solids and air. If a solid is immersed in water its observed outline is the boundary between the water and the solid. Air bubbles blown into water form boundaries between gas and liquid. A drop of oil floating on water forms a boundary between two liquids which do not readily mix. Solids which cling to each other, like flour dust on cloth, form boundaries between solid and solid. These boundaries between the different phases of matter which are commonly known as surfaces are really interfaces; that is, interfaces exist when a solid meets a liquid or a gas or another solid, or where a liquid meets a gas or another liquid.

The surfaces, or interfaces, formed between the three phases, solid, liquid and gas, assume various relationships to each other, and these relationships are fundamental in colloid systems. In the description of these systems are various expressions which help in the understand-

ing of these phase relationships or systems. One phase may be continuous with reference to another which is discontinuous. Synonymous with continuous are outside phase and dispersing phase or medium. Synonymous with discontinuous are inside phase and dispersed phase or substance. A ball suspended in air is wholly surrounded by the gas phase. Since the gas is all around the ball it is the continuous, or the dispersing, phase and the ball is the discontinuous, or dispersed, phase. When the ball is immersed in water, the water becomes the continuous, dispersing, or outside, phase and the ball is the discontinuous, dispersed, or inside, phase.

These large familiar objects illustrate what is true in colloid suspensions or solutions. Although the dispersed particles are too small to be seen with even the ordinary microscope, the same relationships exist as with the ball suspended in air or in water. In colloid solutions or suspensions the particle sizes are in millimicrons. A millimicron is .001 of a micron, and a micron is .00003937 inch. (For fuller details see "Studies in Practical Milling," pages 459-61, by Edgar S. Miller.)

Grouping phase relationships into eight systems has been a great help in visualizing and understanding the structure of bread, dough, emulsions and many other substances. Each phase may in turn become the dispersion medium for the others and for itself, except that one gas dispersed in another gas is not considered as one of the systems. The phase which surrounds another phase is the dispersion medium, and the surrounded phase is the one dispersed. The phase which is dispersed becomes discontinuous and the surrounding phase the continuous. On the basis of the phases, gas, liquid and solid, each acting as a dispersion medium for the two others and also itself, there are eight colloid systems:

Dispersion: Medium or outside phase	Dispersed or inside phase	Examples
Gas	Liquid	Mist, fog, cloud
	Solid	Smoke
	Gas	Foam
Liquid	Liquid	Oil in water, emulsions
	Solid	Suspensions
Solid	Gas	Bread or pumice
	Liquid	Water in rocks
	Solid	Gold dispersed in glass

It would be possible to give many examples of colloid systems. A mist or a fog consists of tiny droplets of water surrounded by the air. Smoke is a cloud of tiny solid particles suspended in the air. In these two cases gas is the outside, or the continuous, phase and the water droplets and the smoke particles are the inside, or discontinuous, phase. A foam consists of tiny air bubbles surrounded by liquid shells. The liquid is the dispersing phase and the air the dispersed phase. Fermented dough may be considered as a stiff foam in which the continuous, or dispersing, phase is liquid water adsorbed on starch and gluten. The gluten also forms a continuous phase, and hence dough is a combination system. Emulsions consist essentially of one liquid dispersed in another. Oil in water is the most common. This is not a simple system, since a third substance must be present in order to make the emulsion stable. The characteristics of this third substance determine the nature and the stability of emulsions. Suspension of solid in liquid, such as any insoluble material mixed with water, are very common. This system includes most of the common colloidal solutions or suspensions.

We may now examine the colloidal structure of bread. In bread the solid surrounds the tiny air bubbles, and thus the solid becomes the continuous phase and the gas the discontinuous, since the bread cell walls entirely surround the air bubbles. They are thus the outside phase and the air bubbles are the inside phase. These cell walls are the dispersing medium and the air bubbles are the dispersed phase. The cell walls, however, are not solid as solid is ordinarily understood, for they are porous. The main substances in the walls are starch granules intertwined by the gluten fibrils which have been "set," or coagulated, by the oven heat. It is these gluten fibrils which confer continuity to the cell walls, so as to surround the air bubbles. The even distribution of approximately equal and small bubbles or pores in bread is one of the best measures of quality. This must also be considered in connection with thinness of cell walls, as well as loaf volume. The thinness of cell walls is one reason for the universally recognized value of wheaten bread as a food. No other substance than wheat flour produces a comparable system.

——BREAD IS THE STAFF OF LIFE——

"The force stored up in bodies of air in motion is ordinarily called 'velocity pressure,' and it is this force, or pressure, that raises and holds kites and airplanes above the earth and drives forward with air currents such bodies as have large surface areas in proportion to their weights. The action of air currents upon bodies of various shapes and weights is therefore of great importance to the student of milling."—"Studies in Practical Milling."

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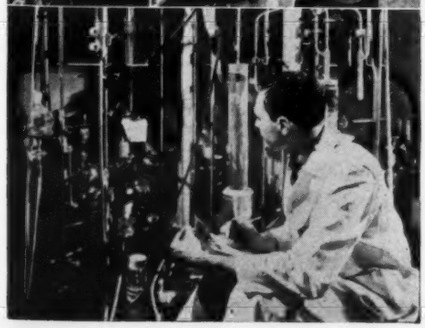

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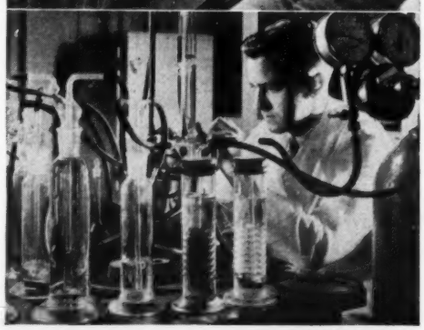

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A MILLER LOOKS BACK

★ Peter Garrulity Again Is Interviewed About the First World War—And Again He Makes Several Interesting Detours

ALTHOUGH arrangements had been made by telephone for a second interview with the veteran miller, Peter Garrulity, he was not in his office when I arrived, about two o'clock on an afternoon that was definitely springish. During my six blocks' walk from the bus station I heard a cardinal (a redbird, to me) whistling loudly, and saw him flying from one tree to another in the little park through which I cut diagonally to save a little walking, although I could think of few things more pleasant than walking on a day like that one.

On the occasion of my earlier visit I had met Mr. Crockett, the chief chemist, in the laboratory on the floor above Mr. Garrulity's personal domain, and I went up the stairs again, with the thought that I might find the man I was looking for. I did. Mr. Garrulity was sitting in the chair in front of Mr. Crockett's flat-topped desk, and Mr. Crockett was perched on one corner of the desk reading aloud from a magazine. I only got something about "white" (the way Mr. Crockett said the word made me think that he would want quotation marks around it) flour with "an ash of 55 and 400 I. U.'s." It was explained afterward that the "I. U.'s" referred to "Vitamin B_1," and that "55 ash" meant that the flour being discussed was said to yield 55/100ths of 1% of incombustible residue, called ash, upon burning.

As Mr. Garrulity got up and waved a welcoming hand to me he told me that he and Mr. Crockett had been discussing vitamins, the "natural" ones and the kind called "synthetic." "You tell him something about this business, Dave," he said to the chemist; "it's plumb beyond me."

"I have a notion that it's away beyond *me*," I said, thinking most strongly about my purpose of getting the low-down on milling conditions in 1917 and remembering how difficult it had been on the other occasion not to encourage Mr. Garrulity to relate interesting anecdotes rather than to impart significant factual information. "I can lay claim to knowing the difference between a vitamin and a calorie, which, according to the published conviction of prominent authorities in the field of nutrition, puts me in a select class made up of the more intellectual Americans and consisting of about 16% of the populace. But what I do *not* know about either or both of them could easily be used to fill all the volumes of the Encyclopedia Britannica. You'd be wasting time, I'm afraid, trying to explain the thing to me, Mr. Crockett."

"What any of us don't know about the subject could be made to fill a pretty big library," the chemist replied, "and if I were to try to explain it to anybody, I'd convict myself of exceeding dumbness inside of five minutes. But I'd be willing to bet an attractive house and lot against a reasonably good set of 6x16 tires that there aren't 10 men in the U. S. who know more of the known facts about the thing than Mr. Peter Garrulity himself. Get him to talk about it, and let me sit in and listen."

"Horsefeathers!" Mr. Garrulity retorted, evidently harking back some distance into the past. "I'm like Will Rogers; all I know about it is what I read in the papers."

"Well, who knows more than that?" Mr. Crockett demanded. "Dr. R. R. Williams, for one, because he's one of the very few men who got right down to bed rock and *found out* not just what he *wanted* to find but what could be verified. He was the—"

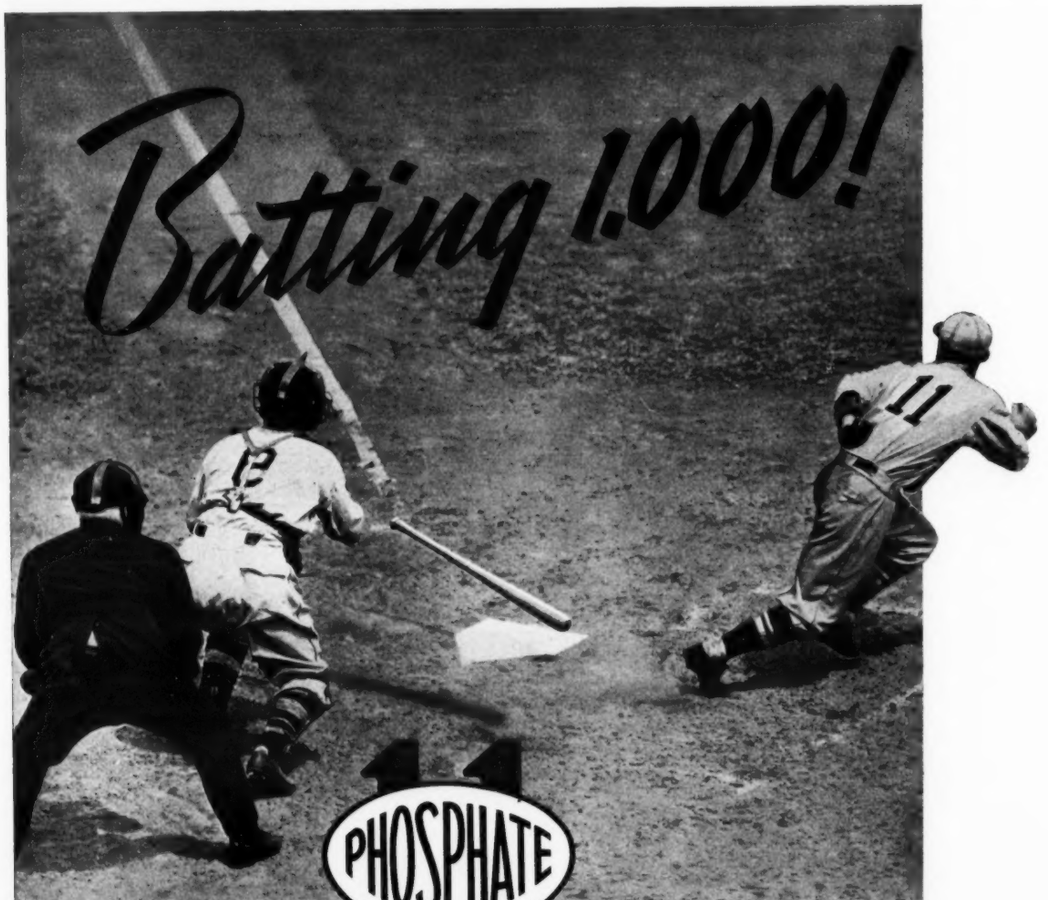
"Excuse me, Dave," Mr. Garrulity interrupted. "This young man came over to Middletown purposely to get me to tell him about what was going on in the milling business around 25 years ago. Doc Williams knew a lot about vitamins then, but most folks didn't know there were such things."

Crockett nodded.

"You've heard of Theodore Ismert, Dave, I reckon?" he interrogated.

"Yes; I remember him," Crockett replied.

"Mr. Ismert was a prominent mill ex-



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VC CHEMICALS

VIRGINIA-CAROLINA CHEMICAL CORPORATION
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ecutive of Kansas City," Mr. Garrulity then informed me. "He was a practical miller, also, and he was a member of the Association of Operative Millers and a darn' good friend of the organization. He was also a sort of patron of the baby science, cereal chemistry, and I understand that he had a lot to do with the organization of the A.A.C.C. He used to worry some of the young chaps, though, with his pretended skepticism. I remember about his making a statement in one of the milling journals, along in '16 or '17, saying that he'd pay one thousand dollars, cash on the barrel head, to anybody who would bring in a real, live vitamin and lay it on the corner of his desk."

"I don't remember a great deal about the 'scientific activities' of the period," the chemist suggested. "I was still in high school. But what were the prevailing notions of the times, Pete?"

The miller shrugged his shoulders. "'Notions' is right," he said. "Take it all around, such people as had heard the word 'vitamins' considered it some kind of a joke. Which isn't so surprising, at that. Just a little while back I was reading a reprint of a little article published in THE NORTHWESTERN MILLER along in 1917. I remembered, then, of having read it when it was first published, but I'd plumb forgotten it before. I'll bet you didn't know, Dave (unless you read this reprint too), that a bird got a patent on vitamins in 1915 and assigned it to a German concern. According to my notions it was a funny sort of deal, because the alleged inventor said in his application that the composition of the things he wanted to patent was unknown and unknowable."

"What became of the patents?"

"That I don't know. If they were ever any good, I don't understand why somebody hasn't patented magnetism. A mighty small royalty on all the electric motors and about a million other things, such as door bells, telephones and the like, would certainly put a fellow in the high-income brackets, wouldn't it?"

He didn't expect an answer to that. He came over to me then and put a big hand on my shoulder. And he said to Mr. Crockett as we approached the door: "By golly, Dave, I'll just have to quit coming up here. You just about talk a leg off me every time I do." Then to me: "Come on; let's get out of here before that bird gets started to talking again!"

* *

I was determined not to try to rush Mr. Garrulity when we got back in his office and settled about as we were at the time of my first call. It seemed to me that whatever he chose to say would be interesting, and it flashed through my mind that if my boss didn't figure that I was wasting my time I'd just as soon string the interviews out over three or four years. To attempt to guide this elderly man along the way a modern young journalist thought he should go hadn't got me very far. So I accepted the proffered cigarette and smoked most of it before a word was said. And Mr. Garrulity said that first word. He took a long last drag, blew a blast through his nostrils so strong that I was reminded of a pair of locomotive smokestacks acting in unison, and asked, "Do you know where we left off the other time?"

I told him that I had some notes which would tell exactly, but that I thought I could remember. "Just before Mr. Crockett sent for you and we went upstairs," I said, "you were telling me about the tests millers used to make for the purpose of judging the strength of wheat and flour. Or, to be really honest about it, you *weren't* telling me about them; only that you *could* if you weren't afraid there wouldn't be room for all of it in the journal."

"Well, what do *you* think? You surely realize that if we keep jumping around from pillar to post, instead of getting down to business and cutting out those inconsequential stories I like too well to relate, this new war may be over before we get well into the other one. And you'll probably get yourself fired just at a time when jobs will be as scarce as hen's teeth."

I don't know why my eyes roved over to the big drawer of the miller's desk, in which he had told me a month before that he kept a super-sharp broadax. He didn't miss it.

"I'll bet right now you're thinking that I was just joshing about what's in that drawer," he said. "And I wouldn't be surprised if you are doubting my truthfulness just a wee bit. I reckon I'd better show you."

He pulled the drawer open and drew out something wrapped in heavy brown paper. Laying it on the desk in front of him, he unfolded the paper. Sure enough, there was an ax of some description. It looked like a hatchet such as the one the father of our country is said to have used in chopping down a young cherry tree many years ago. It was very much bigger than an ordinary hatchet, though, and its blade was even broader in proportion. And instead of the handle being directly behind the cutting edge (which looked to be about as

(Continued on page 17a.)

TEST THIS DANGER ZONE
FOR PENETRATION RESULTS

ARE YOU getting *complete* and *effective* fumigation? Are you reaching the insects and pests that lurk in the "danger zone"—the very heart of every bag and package?

To determine your penetration results, try this simple test—the same exacting test used in many METHYL BROMIDE fumigations.

Place an insect-filled test box in the very center of one of your largest packages. Any kind of *properly ventilated* small box or capsule that allows gas to enter through nail holes or a fine screen is satisfactory. Select any representative bag or package, placing it in the center of the fumigation vault load or, in warehouse fumigation, in the center of a large mass of material. Be sure the test box is buried deep in the contents. . . . Then, after completing your normal fumigation and thorough venting, examine it . . . your answer will be self-evident. (Save the test insects for a few weeks and check to see if insect eggs, as well as active stages, have been eliminated.)

In every test, Dow METHYL BROMIDE effects a complete and thorough kill. High rate of diffusion gives METHYL BROMIDE great penetrating power. This means it will reach into the very center of *every* bag—*every* package. You don't have to wonder if the fumigation was effective. You can rest assured the job is complete. Write for complete information on METHYL BROMIDE fumigations today.

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New York • St. Louis • Chicago • San Francisco
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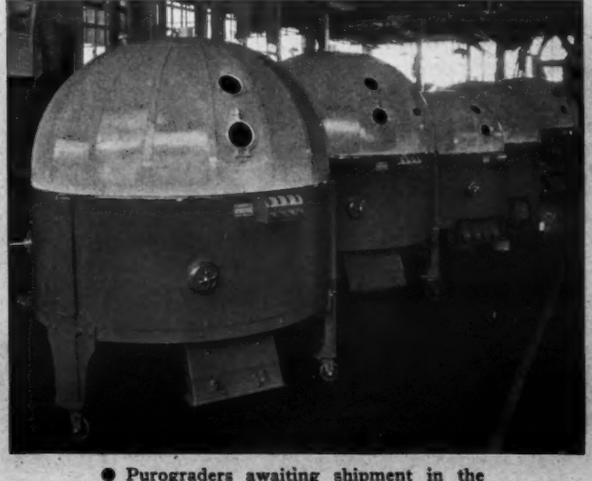
Dow METHYL BROMIDE

THE PENETRATING FUMIGANT

IN THE MILLING SPOTL

A typical Purograder installation on the purifier floor. Compact design utilizes available space to advantage. Note that machine is of all-metal construction, entirely enclosed and dustless. Separations and operating results are clearly visible at all times through conveniently located windows eliminating guesswork in making adjustments. The speed of the Purograder is adjusted by a small speed governor control. A broad range of speed variation is under control of the operator at all times.

● Operator adjusting selector control knobs. This worm-type control provides extremely close adjustments for classification of stock.



● Purograders awaiting shipment in the Hart-Carter shipping department. Illustrated are three of the No. 5 units and two of the smaller No. 4 units.

● Checking grade of middlings being delivered. If variations in separations are desired, machine can be instantly adjusted.

LIGHT—THE PUROGRADER

AN AMAZING NEW METHOD OF MIDDLINGS PURIFICATION!

Again Hart-Carter takes the milling spotlight with a new and revolutionary piece of equipment—this time a machine that meets the most exacting requirements of millers for extreme accuracy and thoroughness in the classifying and purifying of middlings. This machine is the Purograder! It is entirely new in conception, engineering and design—employs no silks or sieves—introduces new principles and methods that materially improve results. Basic principles incorporated in the Purograder are those of centrifugal force and specific gravity combined with air resistance. The purifying and classifying job is accomplished in accordance with natural physical laws: imperfections in separations due to mechanical shortcomings are virtually eliminated. Stock is whirled outward from a central point in a thin, circular spray and separations are made on a basis of weight and size differences, depending on the physical nature of the particles. Thus the fragments of beeswing and layers of bran coat are easily separated from the various grades of middlings and the middlings themselves are classified in accordance with the wishes of the operator. Selections are controlled by the adjustment of selector control knobs and the separations are clearly visible at all times. The accuracy of the classification enables the operator to send light, branny material directly to feed and to spout other grades where he chooses.

SIMPLIFIES PROCESS, IMPROVES YIELDS, LOWERS COSTS

By eliminating grading silks, conveyors, sieves and sieve cleaning equipment and by making unnecessary the operation of large fans, dust collectors and air ducts, the Purograder not only simplifies the purifying operation but also materially reduces costs. Since only a relatively small volume of air is used there is practically no drying of stock. Consequently the middlings are more mellow and less roll power is required for further reduction. The Purograder also helps retain moisture in the branny material and beeswing. Since the operator can dispatch the looser branny materials directly to feed, there is no remixing of the bran with graded middlings and more pure middlings are available for reduction at the head of the reduction system where high grade patent flour is produced. This early elimination of free impurities assures a higher percentage of reduction and enhances the purity of the flour. In important installations already made, users report improved yield, longer extraction of high quality patent, whiter color, less loss of moisture and an all around improved quality at lower cost.

HART-CARTER COMPANY

680 Nineteenth Avenue N. E. **Minneapolis, Minnesota**

R QUESTION AND ANSWER DEPARTMENT ON THE PUROGRADER

Q Is the Purograder an "improve- present purifying methods?

The Purograder makes no attempt to im- esent methods. It departs from established s entirely in principle, design and engineer- makes possible better and more efficient hrough entirely different methods.

Q In what way does the Purograder ock?

Middlings stock of different grades is sep- y weight and size difference and consigned ent outlets. The operator can control these y means of simple adjustments of selector nobs.

Question: How can stock be purified using a relatively small volume of air?

Answer: Separations are made by gentle air resistance combined with centrifugal force and specific gravity. The function performed by air is only one of three factors and supplements the other two more important factors.

Question: How does specific gravity assist in making middlings stock separations?

Answer: The particles of stock, which because of shape and weight are capable of acquiring greatest momentum, travel farthest before the force of gravity combined with air resistance pulls them down.

Question: What are the power requirements of the Purograder?

Answer: Power requirements are small, less than ½ H.P. being consumed in operation of the large size unit. One operator reports total power savings of approximately 5% after complete Purograder installation.

Question: Does the Purograder help reduce danger of insect contamination?

Answer: It does. There are no long ducts and no open cracks, crevices or ledges where insects might find refuge. The inner surfaces of the machine are smoothly finished and can easily be kept clean.

PRODUCTS OF MILLING OPERATIONS

PART FOUR

THE word "gradual" is an important one in milling. Most familiarly it is used with "reduction" to describe a process meaning exactly the opposite of the sudden-death milling that was practiced in the days before purification. But it does not mean only a gradual reduction of large particles to smaller ones; actually, it describes a gradual segregation of the two "parts" of wheat—the so-called impurities and the flour. In fact, reduction might be considered secondary to this segregation.

Many millers believe that regardless of the extraction on any particular break, the total amount of break chop produced in any system of equal length will be about the same. The mill from which the stock pictured in this series came practices open breaking. Only 12.5% of the wheat went through the 18 of the first break. The flow is therefore arranged to handle the types of middlings which may be expected from such a program. Reduction through the 20 of the second break jumped to 42.25%, and for the third break (stocks from which are presented in the accompanying layout) the reduction is 40.5%.

Starting leisurely, the extraction on this program necessarily remains high on the latter breaks, to extract the amount of endosperm available. If more flour and middlings had been produced by the first break rolls there would, of course, have been less "good" material to extract in the latter breaking operations. It seems reasonable to assume that heavier breaking on the first break would result in more bran snips and powder, thus increasing the ash contents of the middlings and break flour. This, however, might well be counter-balanced later in the program.

As a matter of interest, we would like to publish with the pictures of this mill's program photographs of stock taken from a mill where a heavier extraction is practiced. Any millers who would be willing to send samples of their stocks, together with ash and extraction figures, are invited to do so. In the meantime, let's compare the work of the third break with some of the earlier operations.

The third break scalp, No. 16, gives both visual and arithmetical evidence of gradual segregation. Evidence of the eyes reveals that the amount of endosperm is not only getting less—it's becoming more difficult to remove, because of its close attachment to the bran. As a matter of comparison look at the photograph reproduced here from an earlier article of the series. It pictures the scalp of first break and shows berries scarcely broken, revealing large chunks of endosperm which should be (and were) easy to remove by the subsequent break rolls. Ash of the first break scalp was 1.8. Only about a fourth of the stock was bran. By the time the third break had acted upon the stock sent to it the ash had leaped to 3.808—and 56% of the stock was bran. Peeking a bit ahead we find that the scalp of the final break (the fifth) contains only about 18% endosperm—and that the endosperm removed has not come off without a protest from the bran is attested by the ash content of the fourth and fifth break flours—.548 and .840, respectively. But that's getting ahead of the program.

FIRST BREAK SCALP

Picture No. 15 shows the chop of the third break. Its analysis is the same, of course, as the scalp of the second—2.424 ash and 36.116 parts of bran per hundred. No. 16 is the third break scalp, for which figures have already been given. The stock pictured as No. 17 (sizings and coarse middlings to purifier 3) is particularly interesting, since it

represents, in effect, a combination of the middle scalping operations performed by the second break sifter. In the third break the 34W has been eliminated; that accounts for the large pieces of bran and branny endosperm over the 60GG. The ash of stock 17 is .840, compared with .734 for the overs of the 34, second break, and .406 for the overs of the second break's 60GG. Stock 17 has 12.54 parts of bran.

No. 18, the overs of the 12XX, has an ash of .400, and 5.97 parts of bran, compared with 7.75 parts of bran from the comparable stock of second break, which accompanies it to the dusting section. The flour, No. 19, has a .438 ash, as compared with .520 for the second break. Flour production on third is 4.5%—1½% more than on second break.

P. S. Just to keep things interesting, why not send in the samples suggested earlier? Your mill would not, of course, be mentioned.—R. E. M.

Looking Back

(Continued from page 13a.)

sharp as a razor), it was set to one side. Thus, as Mr. Garrulity explained, "a man could hew flat surfaces on round logs mighty near as straight as a die."

I examined the thing briefly. "You surely have kept this a long time," I suggested, "and in first class condition, too."

He grinned a little sheepishly.

"This old ax is pretty old, all right," he replied, "but I *was* kidding when I told you it had belonged to my grandfather. It *could* have, all right, for he certainly used one just like it when he was a 'journeyman millwright.' For in those days a millwright was a *millwright*. When he needed a conveyor, he took his broadax and hewed one out of a square piece of timber—or maybe right out of a log. He also made shafting the same way. Did you ever see a real old-fashioned gear from a water wheel to a run of stones? Or an upright shaft with hand-made gear wheels with removable wooden teeth?"

"No, I'm afraid I haven't."

"Well, that's not surprising," he said then. "There's mighty few in existence in this day and age, I reckon. Used to be a lot of 'em, though, but they were mostly out of the picture before I came in.

"I'll tell you just a little about this thing," he continued, glancing at the tool before him on the desk, "and then I'll get down to something you really want to know about.

"One day when I was over in the main office, somebody asked Mr. Kearns, the manager, what was an adz. He asked me, and I cheerfully described a thing like this. Nobody called me down, and nothing more was said about the matter for maybe a month. Then one day the young chap who monkeys around the office and draws pay for doing it came in here with this identical package. There was a big red tag tied to it, and it's tied to it yet. Take a look."

He turned the blade over. There was a big red tag, all right, and lettered on it in black were the words: "This is a broadax. Take a look in your dictionary, if you have one."

"Did you?"

"Of course. And of course I was wrong in my description. Mr. Kearns grins about it every time I go over to the office."

Then he wrapped the thing up and put it back in the drawer.

"Now, let's get down to business," he said, almost as though I was entirely responsible for the diversion. "The other day, as I remember, I was just about to get up pretty close to the beginning of the other World War when Crockett sent for us to look at the bread. Shall I start where I left off?"

That would be fine, I told him; but at the moment I couldn't quite recall what he was saying when he "left off." He seemed to remember with ease.

"I was thinking then of telling you about one time when we had some trouble with our flour and it turned out to be 'diastatic' trouble. But that didn't happen at the beginning of the war; it was after we were out from under 'government regulations' and were trying as hard as we could to build up a reputation for our flours again. I'll leave that till later. I reckon I've been stalling a lot, and maybe it'd be better if I'd start now and sort of relate things in chronological order, if you get what I mean."

I merely nodded. I was really afraid to say a word, for fear it would remind him of something else and that I might actually never get any great amount of the information I was supposed to get. He evidently didn't expect me to say anything.

"Well, sir," he continued shortly, "as I remember—and I don't forget much except what happened yesterday or maybe last week—in the spring of 1915 I was running second for a guy named Jack Brown, as I told you before. It wasn't a bad job, but I didn't really like it. I was supposed to take the night trick, but the darn' mill didn't run nights, so I worked from six in the morning till six at night. Jack sort of busied himself with loading and fooling around in the office, but still he was in charge of running the mill. He didn't want me to try out any ideas I had about tempering or anything else much, and the blamed mill just ran along without my doing anything but watching for chokes, and things like that. It got pretty tiresome. Then one day a man I'd known for twenty years wrote me that he had a new super and they needed a good second miller. I took the job.

"I liked that job. The superintendent was as fine a guy as I've ever worked with. The mill was in awful shape, but that wasn't the fault of Frank Kramer. It wasn't exactly the fault of John Cartwright, the president and manager, either, for he just didn't have enough capital to do any amount of improving and keep going.

"I worked with Frank Kramer with a lot of satisfaction, for he worked with me and treated me like a man who had quite a bit of sense and wanted to use it. He had just one big fault, though. He got crazy mad sometimes. Never at me, and never with any of the other fellows in the mill. But one day when I came to work at noon, because we were running 18 hours and I was to keep the wheels turning till midnight, he told me that he was leaving. Old John Cartwright was a double-blank so-and-so, he insisted, and he'd be double-damned, and then some, before he'd work for him another day.

(Continued on page 26a.)

DIABLEND

Top Quality

Malted Wheat Flour

It is essential that your hard wheat flours bake consistently to your established standards. But improper diastatic treatment can spoil your most careful wheat selection and milling methods.

DIABLEND malted wheat flour assures you of uniform quality and quantity of diastatic action. Selected wheat is malted in our own malt plant under automatically controlled atmospheric conditions. DIABLEND is manufactured to a standard level of maltose, milled so it is free flowing for accurate feeding.

We will provide samples for experimental work in your own laboratory, or you may send to us samples of your untreated flours for analysis. Maltose or gassing power analyses in our laboratory are free to DIABLEND users. Ask for a sample and quotation of DIABLEND today.

B. A. ECKHART MILLING CO.

1300 W. CARROLL
CHICAGO, ILLINOIS

IN FLOUR MILL buildings of all types, housing from one to three milling units of widely-varying capacities and utilizing equipment made by many different manufacturers, the MACHINERY PIPING SYSTEM (MPS), plus liquid hydrocyanic acid (HCN) applied by Industrial Fumigation Engineers (IFE), "adds up" to economical, rapid, practically 100% extermination of insect pests in all stages of their life cycles.

The MACHINERY PIPING SYSTEM is POSITIVE. It was developed to utilize most effectively, yet safely, one of the most potent fumigants. Liquid HCN is high-pressured throughout an all-inclusive system of copper tubing, bronze fittings and bronze, dustproof nozzles. Thus, heavy concentrations of gas penetrate ALMOST INSTANTANEOUSLY into every part of the milling equipment. The effectiveness of the method obviates extensive clean-up.

A competent Industrial Fumigation Engineer will be glad to survey your mill and determine the cost "per barrel of yearly production" for an ADEQUATE FUMIGATION PROGRAM.

The production capacity now being served by the FLOUR MILL MACHINERY PIPING SYSTEM already totals more than 75,000 barrels of flour per day. The list, which includes some of the industry's finest and largest mills, is available to interested mill executives.

Economical and adequate control of insect pests in any mill can best be maintained by fumigation of *all* its equipment at *the same time*.

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Grain Elevators—Mill Buildings—Industrial Plants

Surplus Milling Capacity?

By W. H. Strowd
Secretary, National Soft Wheat Millers Association

IT has long been accepted that the flour milling industry has a great over-capacity, probably the greatest of any important American industry. While in the past there has been good reason for this belief, it might be dangerous to the national welfare to accept it now without a critical examination of facts as they are, and of future trends as effects of known causes.

During the past few years there has been a rapid elimination of active milling capacity. Much of this could not be restored without great expense. Under the fierce competitive conditions that have existed and which still exist, coupled with the many governmental restrictions the miller must meet, it is to be doubted that even a small part of the present capacity has remained active without sound economic justification. Flour milling is a highly mechanized industry, and the relatively small amount of labor required is to a large extent highly skilled, requiring years of training.

Now let us examine the facts about existing capacity. The 1942 issue of THE NORTHWESTERN MILLER'S "List of Mills" shows a total daily capacity, based upon 24-hour operations, of 709,000 bbls, of which 21,000 bbls capacity, in round numbers, is idle and probably could not be restored to active operation without overhauling and rehabilitation which would be impossible under existing conditions. Hence, the net active capacity is not more than 688,000 bbls, and independent estimates made by the Millers National Federation cut this down by about 10%. Inasmuch as it is the practice of many milling concerns to overstate capacity, this figure may be considered conservative as including the full productive capacity of all mills, including those not classed as "commercial." Certainly, under the most favorable conditions of full-time operations the maximum annual output would not exceed 200,000,000 bbls.

Domestic flour consumption last year was 105,000,000 bbls. This indicates a considerable surplus capacity. But statements by Dr. McCollum, of Johns Hopkins University, and by the United States Bureau of Home Economics as well as other authorities, indicate that the American people could consume 60% more flour than is consumed at present without any sacrifice of sound nutrition. The economy of flour as food and the abundance of wheat as compared with other food sources amply justifies maximum consumption of flour in any nutritional program. Hence the proposed maximum becomes in effect the optimum.

Although many who should be fully informed do not seem to be aware of it, the majority of American citizens are now earning less, in terms of purchasing power, than they were two or three years ago, despite the gain in national income. A Gallup poll released on Dec. 6, 1941, indicates that increased cost of living has caused 17% of our people to use less of the "protective" foods. White flour is not only the most economical staple food, but it is, when enriched with thiamin, iron, niacin and calcium, one of the most important protective foods. Under these conditions we should think in terms, not of the present consumption of flour, but of optimum consumption, which would be more than 80% of our present maximum capacity.

The per capita consumption on this basis would be about the same as that of pre-war France and about equal to the flour ration of France prior to surrender to Germany. It would be substantially less than the latest available figures for Canada. Moreover, in the event of a long war we will be called upon to supply our allies with substantial amounts of flour. But whether the war is long or short, the task of providing great quantities of food for the people of the conquered countries, as well as our allies, will fall to us to a very considerable degree.

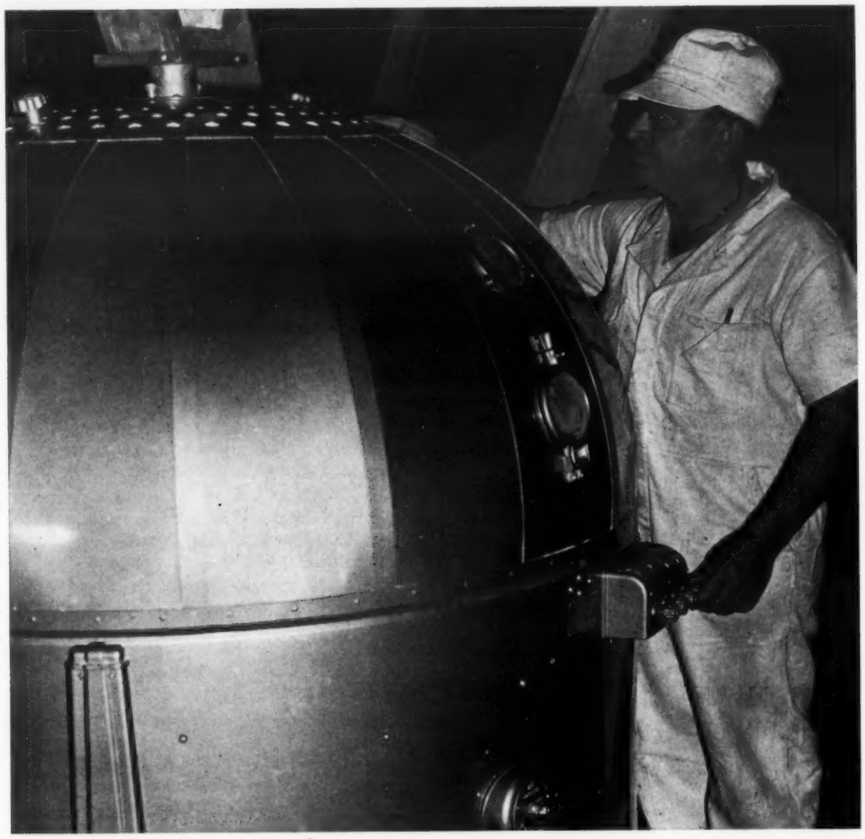
The present surplus capacity over domestic requirements is moderate, and the figures presented as representing maximum available capacity do not mean that America could actually produce that much flour without substantial changes which might seriously impair production efficiency. With regard to our being called upon to supply foods in greatly increased amounts to our allies and others, it is common sense to expect a large part of this to be in the form of flour. For in addition to the virtue of flour as a basic and protective food, there are also the advantages of easy distribution and storage, since under any reasonable conditions white flour is not a perishable food.

——BREAD IS THE STAFF OF LIFE——

"If we could always have a mill-mix composed exclusively of vitreous berries or one composed exclusively of mealy berries, the 'manufacture' of clean middlings and flour with a maximum flour yield would be much less difficult than it actually is. We are not moving in the direction of such a situation, however. On the contrary, the individual berries of the mill-mix today are much more dissimilar than was the case even ten years ago."—"Studies in Practical Milling."

LIME AND WHITEWASH

LIME as it comes from the kiln is an oxide of the element, calcium. The molecule contains calcium and oxygen but no hydrogen. It is well known that when it comes in contact with water chemical changes occur. The combining of the calcium oxide, called "quicklime," is accompanied by the evolution of heat, and so great is the amount that the lime becomes very hot. This energetic action is called *slacking*, and the product of the reaction is calcium hydroxide, the formula of which is CaH_2O_2. This is commonly called "slacked lime," and it is produced from calcium oxide exposed to air when it absorbs sufficient water vapor (always present in some degree in the atmosphere) to furnish the combining agent. Just as much heat is evolved in one case as in the other, but in the latter this heat is usually dissipated so readily that there is virtually no discernible rise in temperature.



CLASSIFICATION ON THE HART PUROGRADER IS REGULATED BY OUTSIDE CONTROLS

A NEW PURIFYING SYSTEM

NO other machine used in the process of flour milling as it is known today has been "improved" as often as the middlings purifier utilizing air currents and a reciprocating, or oscillating, sieve, yet no other machine in general use follows the design and construction of the first practical device of the type more closely. Innumerable attempts to rectify the faults inherent in the combination of principles involved have been made by introducing elaboration after elaboration, but American milling engineers generally have abandoned elaboration in favor of simplification, and in many large American mills the sieve purifiers now in use are less complex than those introduced two thirds of a century ago.

There have been mechanical improvements, of course. More efficient fans and dust collectors (essentially a part of sieve purifiers) have come into use, and better bearings and more effective driving mechanisms have been developed. There have also been refinements in the arrangement of slides, or valves, by the use of which the miller is able to route the throughs of different sections of the sieve to either of two conveyors discharging into different outlets.

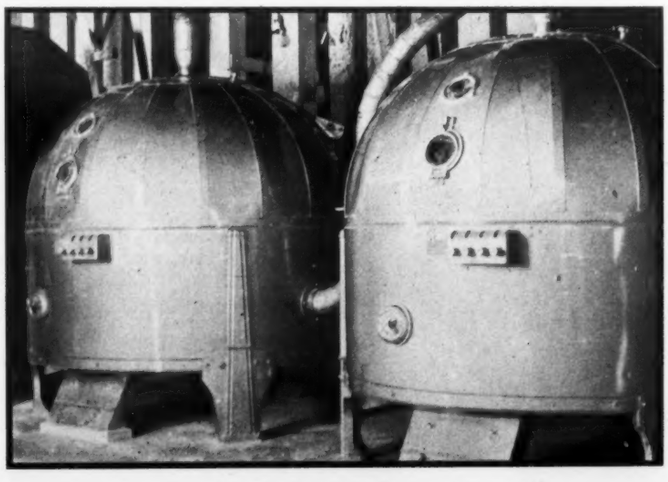
Only in the machines of older construction will conveyors with wooden flights set into holes following spiral paths on the faces of large wooden shafts be found. Metal shafting and flights of special design made their appearance several years ago, and in some instances screw conveyors have been dispensed with entirely, being displaced by a series of movable plates angled to receive certain of the various aggregations of separates and lead each to an outlet arranged to receive it.

With all this, the operating principle of the sieve purifier has remained the same through these many years. From a chamber above a sieve arranged to oscillate lengthwise and receive stock at one end set slightly above the other, air is exhausted to the eye of a fan. Into a chamber below the sieve, and cut off from the upper chamber more or less effectively by the loaded sieve moving beneath flexible strips attached to the walls of the upper chamber, portions of the stock fall through the meshes of the cloth and against upward-moving air currents seeking their way to the exhausting fan. For effective operation, it is essential that the stock be spread evenly over the sieve—something that is achieved only when the mechanical condition of the machine is kept at the highest point of perfection.

It has long been known that variations in the existing pressure of the air sur-

(Continued on page 24a.)

IN THE SOUTHWEST . . .



. . . AND IN THE NORTHWEST

How to Catch Fish and Influence Middlings

"WHAT," we asked not unreasonably, "is a Norwegian politician doing at an A.O.M. convention?"

The time was several years ago. We hadn't attended an A.O.M. convention before: and we hadn't had the pleasure of meeting Bill Smith.

For Mr. Smith, whose initials, which he seldom uses, are W. N., and who is, among other things, vice president and general superintendent of the Montana Flour Mills Co., Great Falls, is an interesting and versatile man. Back of Mr. Smith's excellent Norse dialogue, we were told, would be found a faint Irish accent. The "aye ban" style of speech only came into use by request from an appreciative A.O.M. audience, who enjoyed seeing Mr. Smith put on his act.

That was our first contact with the gentleman from Montana. We've had the pleasure of being with him, and have heard a great deal about him, since. And just recently he's come into the limelight through his invention of a new type of purifier, now being marketed by the Hart-Carter Co., Minneapolis, under his patents.

Probably the milling industry would never have known Mr. Smith if it weren't for the fact that he likes—and has always liked—to fish. In his early teens (he was born in 1867) he lived in Fergus Falls, Minn. The Red River Roller Mill there was run by the waters of the Ottertail River, and the fish, who knew good food when they nibbled it, had a habit of frequenting the vicinity. There was also another reason for young Bill's keeping in close touch with the mill. An accommodating Norse mill hand kept his sturgeon spears sharpened.

Fortunately for the fish that might have been caught, Bill's parents decided it was time for him to go to work. Their hint, we're told, was gentle—but there was no mistaking its earnestness. So Bill got a job as sweeper in the Fergus Falls Mill. He thought it would keep him in touch with the under-water game.

Soon, however, he found himself more interested in the mill itself than in the mill stream—within limits, of course. He kept in close touch with the finny tribes—and does so still.

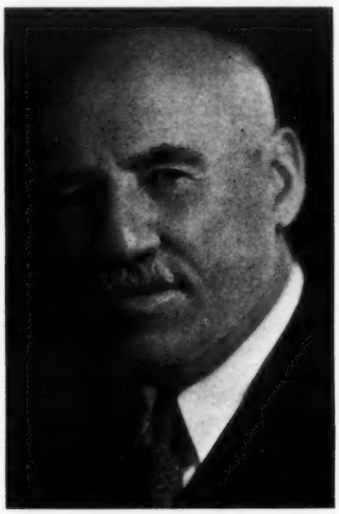
From the Red River mill he went to the Cable plant at Fergus Falls, and from there to the 600-bbl Page mill on the Ottertail River just above his previous location. By the time he was 21, he was head miller at that plant. With this passage of years, his Isaac Walton instincts had definitely taken a back seat to a study of flour manufacture.

His first contact with invention came early. The superintendent at the Page mill developed a gravity separator which was later manufactured by James Pye, of Minneapolis. One of the to-be-expected defects which appeared during experimental work was the failure of the machine to keep the scalping sieves clean.

Subsequent developments might, to a psychologist, point to something salient in Bill Smith's makeup. His responsibility was to clean the recalcitrant screens at what were probably too frequent intervals. Therefore he arranged a beater driven by a handy hexagon reel. Each revolution of the reel gave the screens six beatings. The cleaning problem was solved.

Mr. Smith was told that he might amount to something when he grew up.

Just where, in the course of his wanderings, Bill Smith picked up the Norse accent is not known. Perhaps the man who so obligingly sharpened his sturgeon spears was responsible. But in addition to learning how to make friends and influence people to laugh, he also picked up a great deal of milling knowledge. From the Page mill he went to a plant in Fargo, N. D. Later he was in Duluth, Minn. Finally he became associated with W. C. Leistikow at Grafton, N. D. When the mill there was sold to the Grafton Roller Mill Co., he became vice president and superintendent. Shortly after that the concern built a mill at Harlowton, Mont. (the Milwaukee railroad had just completed its Puget Sound extension) and Mr. Smith took up permanent residence in that state.



W. N. Smith

A year later, he joined C. R. McClave (who, incidentally, furnished these biographical facts) in founding the Montana Flour Mills Co., which took over the Harlowton mill and later expanded into the large concern it is today.

During these years he had been constantly engaged in milling. Either because he wanted more time to go fishing—or because he was just naturally curious—he spent a great many hours experimenting on various things that would either produce better flour or do a job more efficiently. In the earlier days problems kept popping up about subjects of which Mr. Smith had little or no knowledge. One time, for example, a large baking company asked for a flour that carried only 750 grams of

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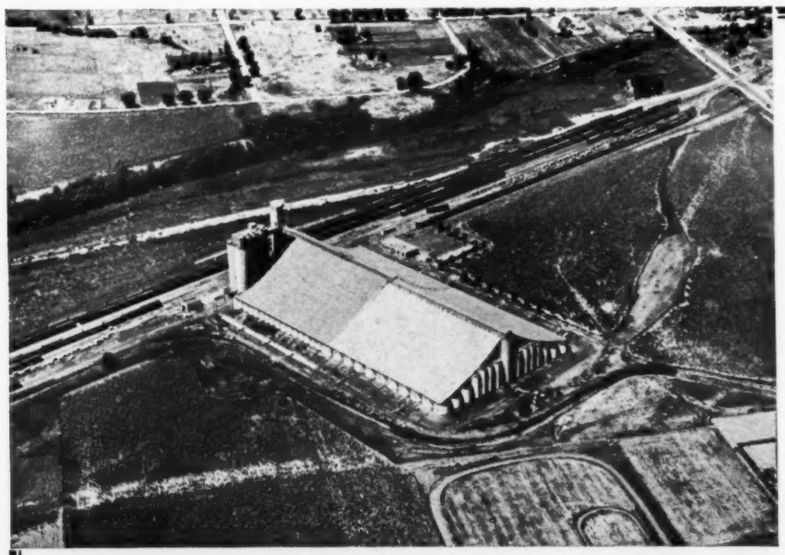

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gluten to 4 oz of flour. Mr. Smith had never heard of testing flour to determine its quality in terms of grams of gluten. But an encyclopedia supplied the information for procedure, with the result that the flour they were milling was shown to have 950 grams to 4 oz. By experimentation, the desired gluten content was reached.

Mr. Smith has been fortunate that, in addition to being a keenly interested operative miller, he has been an official of the concern for which he works. Experimental efforts were made easier this way. When he recently decided he had thought of a way to purify and grade middlings by principles different from those used in an ordinary sieve purifier, he had full opportunity to construct the machines necessary to prove the merit—or lack of merit—in the scheme.

Today, with a well-known machinery firm successfully adapting to commercial production his invention, Bill Smith has proved that he not only can catch fish, make friends and probably be elected to high office in a completely Scandinavian community—he can make flour and influence middlings as well!

—Richard E. Miller.

POSTSCRIPT ON PRIORITIES

By Rad Nelson

THERE'LL be no nickel in the 5c pieces being coined now because Uncle Sam says this metal can be diverted to defense production of vital war tools.

But this precaution will not secure the nickel alloys necessary to the manufacture of light wire cloth for flour mill bolting. The latest facts are that the general priority of A-10, P-100, granted the industry as a whole by the old OPM and reiterated by the War Production Board, is far from sufficient to secure wire cloth with nickel content. Manufacturers need a preference rating of A-1-c on orders for light wire bolting cloth in order to replace their dwindling inventories within a reasonable length of time.

Whether this is a temporary condition or not can only be predicted with uncertainty. A factor worth considering is the possibility of applying priority to materials for maintenance, repair or operating supplies because of orders received from the government for army and navy contracts. The A-1-c rating is near the top of the list and falls in the category with vital equipment going directly into the hands of the fighting forces, such as planes, guns, and arms replacements.

As matters stand now, the stocks of tinned steel wire cloth and light alloy bolting cloth carried by dealers will be depleted rapidly under even normal consumption, and without regular replacements from manufacturers, the dealers as well as the mills will face a serious need for bolting material.

Stocks of silk bolting cloth remain mysteriously plentiful, with normal consumption being replaced, with only slight delay, from recent importations. With a fair stock maintained by dealers as well as the reserve built up by mills during the past two years, silk bolting cloth now at hand can see us through the war if an optimistic attitude is taken on the time when hostilities will cease.

So when you're not worried about the disappearing stock of wire cloth containing tin and nickel, precious metals indeed today, you can wonder what they'll name the new nickel-less nickel. "Sico" and "Cosi" are suggestions which have been made for the twentieth part of a dollar you might find in your pocket in the future, containing a mixture of copper, silver and other alloys.

——BREAD IS THE STAFF OF LIFE——

"Although the miller's main object is the manufacture of flour suitable for a number of purposes, he produces at the same time by-products which are used for animal and poultry feeding. Essentially these are bran and the products intermediate between bran and flour... The prices of bran and wheatfeed vary according to the demand, and, therefore, the amount of bran and wheatfeed produced is regulated by the miller. When the price of bran is relatively high the mill will be operated in such a fashion as to produce the maximum amount of bran, while, if it is profitable to make wheatfeed, some of the small bran will be cut up still further and introduced into the wheat feed."—Kent-Jones in "Modern Cereal Chemistry."

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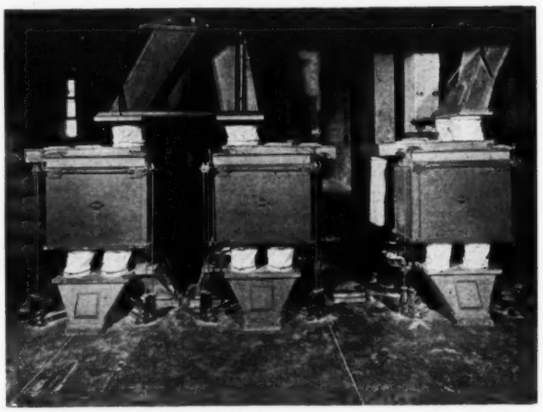

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USE LESS POWER

With the increasing practice of deriving power from the public supply, with the elimination of private generating plants, the modern miller, in addition to his routine duties, must also pay attention to the power factor in his mill. War conditions are due to cut this power allowance. Conscious of this trend, there has been an increasing adoption of the short throw, high speed, fractionally powered Sifters to supersede old style reels, and obsolete bolting equipment. In this connection, Niagara Gyro-Whip Sifters have been outstanding.

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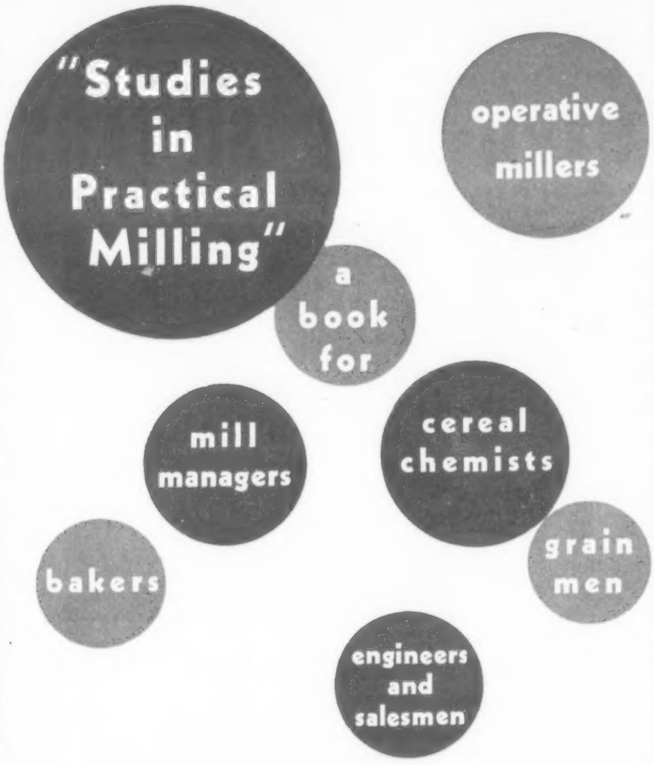

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« « « SHORT PROGRAM FOR WHOLE WHEAT FLOUR

REGARDLESS of the arguments that have been going on for some time about the relative merits of enriched white flour and dark flours as a source of vitamins, there is, as there has been for many years, a demand for flours of the "graham" type simply because many people like, for variety, to eat muffins or rolls or bread containing some bran and germ. It is generally conceded that either bran or germ lessens the keeping properties of the flour containing one or the other, or both, and there is no doubt about the desirability of a freshly-ground product. For this reason, the smaller mills have the advantage of grinding only small quantities daily and marketing it locally or nearby while it is still fresh. It should be understood that under the standards of identity made mandatory by the federal government it is not permissible to market a product made by mixing offals (bran, shorts, etc.) with white flour, in the proportions existent in the wheat berry, under the name of "Whole Wheat Flour," "Graham Flour," or "Entire Wheat Flour," for it is specified that all these must be prepared "by so grinding cleaned wheat other than durum wheat and red durum wheat" that when tested by a method later described in the specifications the particle sizes of the product will meet the requirements set forth. Unquestionably, it was the intent that cleaned bread wheat should be specially ground in making a product to be sold under any of the three names mentioned above.

The accompanying sketch shows how one miller arranged a small self-contained mill consisting of four pairs of rolls, one shaker scalper and four centrifugal reels for making whole wheat flour. Only three of the reels were used, for it is not desirable to separate the chop of the 4th pair of rolls. Running the chop of the 2nd pair of rolls to a reel clothed with 10XX is admittedly a bad feature, as it contains nearly all the bran, but the fault is inherent in the machine and occurs even when it is used as originally intended—for the milling of white flour. The process as outlined is continuous, and no batch mixer is required. It can be started quickly and run only as long as is necessary to make the amount of product required for ready sale. The mill can be easily fumigated to prevent insect infestation.—T. T.

THE GRIN-MIX

TANDEM

Ruth rode on my cycle car,
Directly back of me.
I hit a bump at sixty-five,
And rode on ruthlessly.
Rays of Sunshine.

LESS WORK

When a Scottish barber was engaging a new assistant he pointed out:

"I pay lower wages in the summer because the work's lighter.

"But surely people get their hair cut quite as often, if not oftener, in the summer than the winter?" protested the applicant for the job.

"Ay," agreed the barber, "but you dinna ha'e to help them on wi' their overcoats."—*Answers.*

ONLY DIFFERENT

He.—In many states a hunting license entitles you to one deer and no more.

She.—Hmm, just like a marriage license.

He.—No, the hunting license means what it says.

THERE'S ALWAYS ANOTHER

Since they've been blasting for new subways in the vicinity of the absent-minded professor's house he's dated all his letters July 4.

LOGIC

Teacher.—When was Rome built?

Boy.—At night.

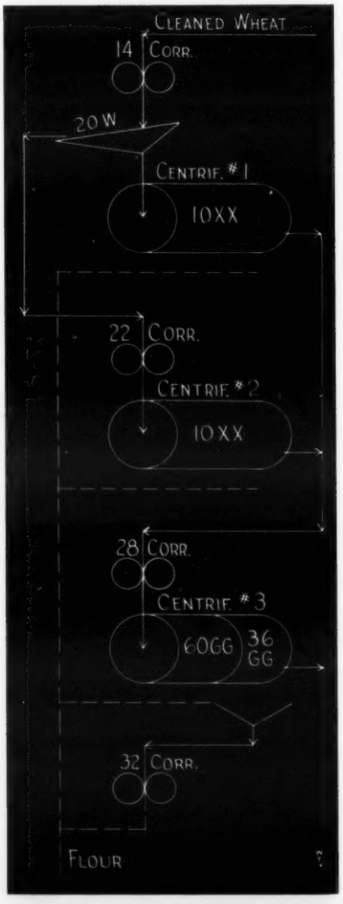
Teacher.—Who told you that?

Boy.—You did. You said Rome wasn't built in a day.

FRANK

"I'm sorry, old man, but I make it a rule never to lend money. It ruins friendship."

"Why let that worry you? We never were what you might call wonderfully good friends, were we?"—*Tit-Bits.*



Whole Wheat Flow

It couldn't have happened with Bemis washout inks!

"Dangnation, Oncle Rafe—you been usin' mah pretties fer target practice?"

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WICHITA KANSAS

Purifying

(Continued from page 19a.)

rounding sieve purifiers cause variations in performance, and millers have often complained that the large volumes of air used lowered the moisture content of the middlings and made reduction and separation more difficult. It has been argued that because of variations in atmospheric humidity the operation of the whole reduction and sifting system is frequently upset, making uniformity of products almost impossible. It has further been shown that even under favorable conditions the chambers above and below the sieve, together with the large and usually long air trunks required for the disposal of the moving air from which some valuable materials have to be recovered, offered refuge for insects. Yet the sieve purifier, with all its faults, has held its place for many years because means for avoiding its faults without losing its virtues were wanting.

It has been said that a too-high respect for precedent often retards progress, and the miller of today has witnessed more than one instance in which equipment designed on entirely new lines, almost in direct opposition to time-honored construction, has proved its worth in the face of strong prejudice. So when a rumor began to be heard that a new system of purifying and grading middlings was in a state of development, considerable interest was aroused. It was reported, somewhat vaguely, that a well-known veteran operative miller, W. N. Smith, vice president and milling superintendent of the Montana Flour Mills Co., Great Falls, Mont., had been working on a "new idea" and that a number of prominent concerns serving the milling industry were investigating the feasibility of his idea.

Vagueness disappeared when the Hart-Carter Co., of Minneapolis, announced at the 1941 convention of the Association of Operative Millers that it had the exclusive license in respect to the Smith invention, and that its engineers had designed the Hart Purograder, which would be offered to the milling industry. This month the Hart Purograder is being formally announced.

The Hart-Carter Co. has acquired the rights under the Smith patents, which are considered basic, and the Purograder is the result of redesign and further development of Mr. Smith's invention. In no way does the Purograder resemble the sieve purifier, either in principle or in appearance. It does not employ strong air currents; there are no conveyors, no sieves, and therefore, no sieve-cleaning equipment. A relatively small volume of air is moved, and there is consequently little evaporation of moisture from the stocks. Large fans, dust collectors and air ducts are unnecessary to the operation of the machine, and there should be, of course, a considerable saving in power over that required for sieve purifiers, since but little is used in moving the revolving members—the only moving parts.

The speed of the Purograder may be varied by the movement of a small lever, and the operator may make selections with great accuracy by means of an ingenious arrangement operated by selector control knobs. Both the speed of the machine and the position of the selectors have a bearing on the nature of the middlings delivered to the outlets. There are three of these outlets for middlings of different grades and one outlet for the material rejected and routed to feed. There appears to be no crack, no crevice or ledge to give refuge to an insect population, and the machine is "streamlined" and presents a handsome appearance.

——BREAD IS THE STAFF OF LIFE——

"The history of cereal chemistry is largely the history of attempts to explain strength, i.e., why some flours are preferred to others for breadmaking."—Kent-Jones in "Modern Cereal Chemistry."

——BREAD IS THE STAFF OF LIFE——

"In any mill the qualities of the products must be suited to the trade requirements, and the best flour percentage possible obtained consistent with this. The aim of commercial milling might be expressed as being the conversion of wheat into products of optimum selling value."—Scott, in "Flour Milling Processes."

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Infestation

(Continued from page 7a.)

products and complete mill control. A standard practice when using methyl bromide for mill fumigation is *not* to clean out accumulations of stock in conveyors and other machines. The gas penetrates and, evidently, stays in this stock sufficiently long to give a thorough kill.

The makers of methyl bromide do not recommend it for use in fumigation of a loosely constructed building. Its rapid powers of expansion make it escape too easily to maintain a proper concentration.

An interesting development in the use of methyl bromide is the system of "tarpaulin fumigation." This might be described as a portable fumigation vault, since the tarpaulin serves to cover piled bags and hold around them a concentration sufficient to penetrate and kill. The tarpaulin is spread over the bags and sealed at the bottom by stacks of filled bags spaced around its perimeter. Made of a special compound, it is impervious to the gas, which is applied from a cylinder, under its own pressure, through a tube. The system is of particular value for the treatment of isolated products—perhaps flour to be fed in, feed, etc. Methyl bromide has also been proved valuable as a grain fumigant in tight bins. As with the other gases, its application for various uses is specialized.

Hydrocyanic acid gas has been known and used by millers for years. It is generated in many forms—by liquid, from granules, discs and special generators. The availability of the various forms makes it a highly adaptable gas for use in all types of control—from the grain storage bin to the mill proper. Regardless of how it is generated, it is a colorless gas boiling at about 79° F. It is extremely toxic.

In grain bins HCN is usually generated from granules of calcium cyanide, which is fed into the grain stream. Contact with air moisture releases the gas. In mills, it is used not only in piping systems, but by special applicators that allow the fumigant to be applied directly to the interior of various machines. For space fumigation when the piping system is not used, very thin discs or granules are usually spread on the floor or the gas may be produced hot from special generators.

The ethylene dichloride, carbon tetrachloride mixtures which, as was mentioned, are sold commercially under several different names (the gases vary because of other components of the mixture) are widely used for grain fumigation, for "local" fumigation of machines, in vaults and in general fumigating work. Most of these mixtures are not as harmful to man as the other fumigants mentioned. They are therefore often employed by "nonprofessionals."

Because of their low toxicity, such mixtures have found wide use in grain fumigations, particularly where it is difficult to control the gas. In some places they are probably more suitable than the gases more deadly to humans; in others, it is perhaps more economical to use the highly lethal products. The choice is up to the miller.

Chloropicrin is the remaining common and popular fumigant finding wide use in the grain trade. It is perhaps better known as "tear gas," because that's what it is. The boiling point of chloropicrin is considerably higher than those of the other products mentioned—233.6° F. It evaporates slowly on exposure to air. Liquid chloropicrin is easily applied—for example, grain going to a bin may be treated by a drip from a can located above the spout. A "sprinkler bottle" is used to introduce it into various machines in either local or entire mill fumigation, and it is also widely used in machinery piping systems. Highly toxic, chloropicrin is painful to the eyes and throat. In other words, no one will unknowingly expose himself to even a small concentration of it.

And there, in a very brief form, are the four products with which, under various trade names, the miller will come in contact. They're all good—and each has some advantage over the other. The miller who uses one or more of them, takes advantage of the spray method for week-by-week control, keeps his plant *clean* and crosses his fingers about the health and durability of the insects which are reported authoritatively to be backing to the limit the program of storing wheat in "tin" bins on farms—the miller who does all that will come as close as any other to having an insect-free mill. That's coming pretty close. So close, in fact, that an inspector who comes around to investigate the possibility that infestation in a shipment of condemned flour may have originated in the mill will shake his head and look elsewhere.

Suggestions for Further Reading

"Insect Pests of Stored Grain and Grain Products." Burgess Publishing Co., Minneapolis, Minn.

"Safer Fumigation Manual," "Simpler Pest Control," "Rodent Control," "Seed Treatment," "Stop This Robber," "Contact Sprays." Innis, Speiden & Co., 117 Liberty Street, New York City.

"Mill and Warehouse Fumigation," "Grain Fumigation," "Industrial Fumigation," "How Can Flour Mills Best Meet Sanitary Requirements?" American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, New York.

"Methyl Bromide," "Chloropicrin for General Insect Control and Spot Fumigation," "Seed Fumigation," "Tarpaulin Fumigation." Dow Chemical Co., Midland, Mich.

"Liquid Insecticide Gas." Midland Chemical Laboratories, Dubuque, Iowa.

——BREAD IS THE STAFF OF LIFE——

"Apparently . . . the washing of 'dirty wheat' is not a controversial matter. The question is whether the grain to be used is dirty enough to justify washing, and that would seem to be a matter to be decided by each individual miller."—"Studies in Practical Milling."

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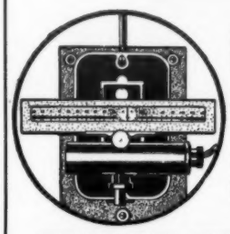

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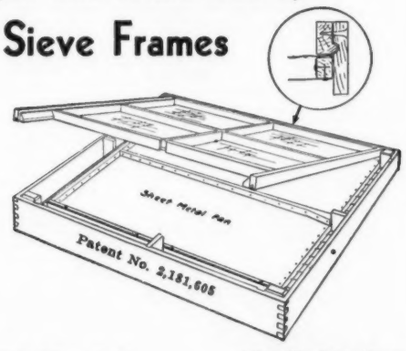

NOR-VELL SIEVE CO. • 1510 W. 29th Street Kansas City, Missouri

Looking Back

(Continued from page 17a.)

"Mr. Cartwright came down to the mill after supper and told me about the fight he'd had with Kramer. He offered me Frank's job. After I'd talked with Frank the next day, I decided to take it, for there wasn't the least little bit of a chance that he and Cartwright would patch things up.

"Things went along without much happening for several months. The milling equipment was getting worse and worse all the time, and after we had declared war, and there began to be considerable worrying about how the U. S. was going to be able to make enough flour to keep our soldiers and the soldiers of our allies well fed and at the same time keep the noncombatant population of America and the other countries fighting on our side from starving, I began to do a little scheming.

"I talked John Cartwright into making a start toward remodeling the old mill and increasing its capacity. He said that the U. S. officials wouldn't even listen to any proposal that would mean a shutdown; but when I explained to one of the big shots that it was either shut down a short time and come back with about a 70% increase in capacity or let the plant *fall* down and lose the capacity we had for all time, the idea got going. We got some milling engineers busy with plans, and after they had things lined up somewhat we put a big gang of millwrights to work, so that when we finally shut down to install the new sifters and several new rolls and other machines, everything would be ready.

"We could do this because we were sticking another story on the building and putting in 'high' sifters instead of low ones. The millwrights built landing boards over the places where the new sifters would set, and they also built landing boards with holes at the exact places where the elevators would discharge after they had been lengthened. And they built the spouts that were to go in between. We did do a mighty fast job. Incidentally, just the day before we had planned to shut down, one of the old sifters flew entirely to pieces."

I was getting more and more interested right along, and when Mr. Garrulity got up and said he'd have to have a drink, and didn't I need one, too, I was afraid that I wouldn't get him going again that day. But after glancing at his watch, he returned to his seat. And I to mine.

"I've run a little ahead of myself," he said presently. "As a matter of fact, after I managed to wish that good-sized job of remodeling in practically no time at all on to myself, but before the thing had really got under way, John Cartwright wished something else on to me. It was really a big juicy lemon, but I didn't know it, or didn't have sense enough to realize it, at the time. Not that it would have made any difference. I reckon I would have tackled the thing and gone through with it as best I could even if I'd known as much about it as I did a year later."

The telephone rang, and when Mr. Garrulity told someone at the other end that he'd be over "pretty soon," I knew that the interview was about over for the day. But it wasn't—quite.

"It was like this," he told me, taking up where he had left off. "Cartwright learned that some miller he knew was changing the machinery in a 400-bbl mill the company owned with a view to producing flour from barley. He was all excited about it, and one day he called me and asked if I could be ready to take a trip with him, starting that night. I said I supposed I could, but what the dickens was it all about, anyway? He said that we'd leave on the eight o'clock Interurban that evening for Clay City, and he'd tell me all about it on the way down. We were to get up in time to catch a five o'clock train the next morning. I looked out through the frost on my window and saw that a fine snow was driving along from the northwest on a high wind. I knew it was cold, but I didn't know how cold. But by eight o'clock that evening the thermometer had dropped below zero."

He looked at his watch again and then got up. "It's about time to take a look at Crockett's bread," he said. "Want a loaf today? It's too pretty outdoors to talk about blizzards, anyway, but I won't forget where I left off."

(To be continued.)

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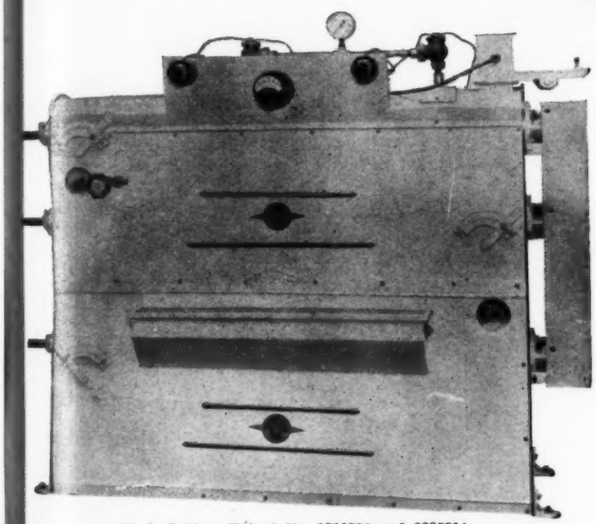

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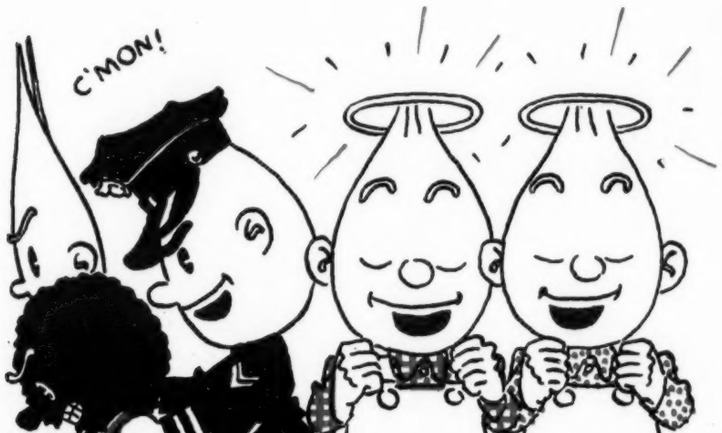

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- And the way to eliminate such unwanted foreign materials as these from your wheat is to take them out surely and positively on the basis of length separation with one of Hart-Carter's efficient separators. Pictured on the right are three different types of machines, each especially designed to meet the needs of millers. Take your choice of Discs alone, Cylinders alone or Discs and Cylinders combined. With one of these units you can not only rid wheat of cockle and oats, but you can also separate spring wheat from durum, eliminate barley, and remove difficult small seeds of all kinds. Wartime production calls for new thoroughness and efficiency. Install a Hart-Carter grain cleaner. Write for latest catalog folders and prices now.

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1 The Carter Disc Cockle Separator provides the most exacting length separation for the removal of cockle. May also be had equipped for oat separations—or in a combination model for both oat and cockle removal.

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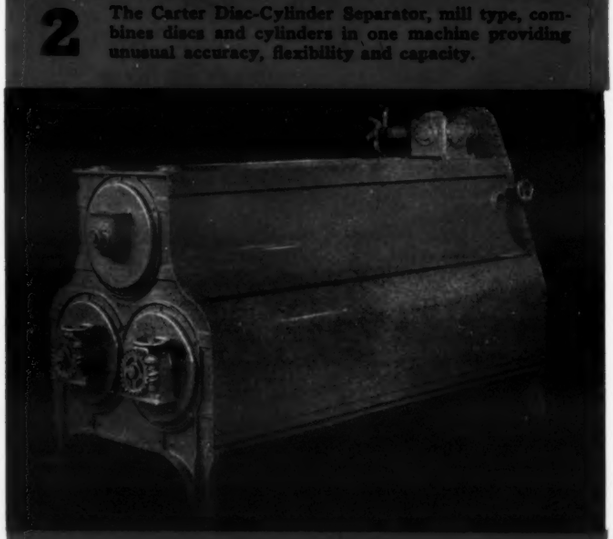

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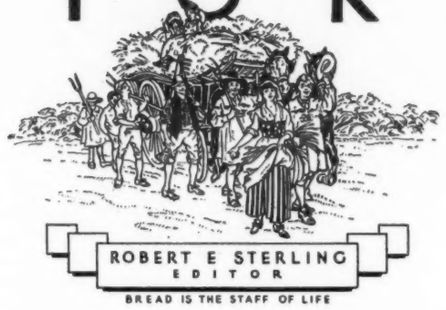
EDITORIAL



OPPORTUNITY

A MILLER recently returned from calling on some of his customers in Texas tells us an interesting story of a jobber in that state who, voluntarily and quite off his own bat, said that he had not been paying much attention to flour but meant to push its sale more actively because he figured the reduction in his sugar volume, together with signs of increased family consumption of flour, strongly counseled his doing so. A day or two later another jobber declared the same intention based on the same interpretation of the situation. Our informant did not know if they were aware of the equal energy value of the two commodities, or of the superior energy and vitality value of flour. They merely had figured it out that way.

We recently commented in this column on the opportunity for millers and bakers to make the most, in their advertising and radio broadcasts, of this close relationship in nutritional values between sugar and flour, the one on the verge of definite rationing and the other now, and virtually certain to continue to be, free as air—even, if millers continue to give their shirts as a premium with every sack, almost equally free in the matter of the price at which it is sold.

Certainly, in any other line of industry, if a competitor's supply of a commodity were to be shifted over into second by the strong hand of government, the merchant having a perfect substitute to offer would be up and at 'em with everything he had in his kit. It is true that milling and baking have no long profits permitting any sort of nation-wide campaign of public education and sales promotion as a joint enterprise. Yet there is no reason why every individual miller and baker in the country should not take a hand in telling the housewife that, as sugar becomes scarcer, her flock will go right along by simply eating a couple more slices of bread a day—energy and vitality all right there in the wrapper or, in the biscuit belt, hot out of the oven.

If these local Texas jobbers can discover this simple truth for themselves, surely these great industries would find it worth while to broadcast it to all people.

——BREAD IS THE STAFF OF LIFE——

"WAR BREAD"

TO an observer on this side of the international boundary it seems a great pity that our next door neighbor on the north should have selected this time above all others to begin playing tricks with the people's bread. Surely when Canada, along with ourselves and many other nations, is so deeply involved in the hard difficulties of war for existence, with inevitable disturbance of all of the normal currents of life, is the time of all times when the one so easily held anchorage of war morale—plenty of good bread of the kind people prefer—should be clung to at every reasonable cost.

Indeed, it is difficult to discern what those in authority in Canada hope just now to accomplish by this needless upsetting of long established tradition, taste and habit. The discussions of bread reform within the government were, so far as we were able to observe, hardly more than rather pointless debates; and outside of the government, particularly within the bread industries themselves, there was little open expression of pronounced opinion. This very likely was due, as expressed by Mr. Bailey, our own informed representative in Canada, to a feeling that if darker bread will help to win the war then darker bread should be accepted without demur and made the best of. Thus was evolved the scheme of "government approved" flour, containing a part of the more fibrous portion of the wheat berry, apparently as the result of skillful promotion by nutritional reformers and adopted more or less by default of outspoken opposition.

So we have the picture of a great nation, not only blessed above all others by possession of the world's greatest wheatfield and producing what probably is the highest quality of bread wheat in the world, and with a present and prospective overproduction and underconsumption that constitute a grave economic and social problem, proceeding willfully to cut down its own consumption of wheat for human food and decreasing—even if only by a little—the supply of much needed animal feeds. And to what end?

It is true that the action follows the course of Britain in adoption of long extraction flour and also follows by about a year our own bread reform implemented by the enrichment program. It well may be that Britain's action in following the traditional pattern of increasing the rate of flour extraction in periods of wheat scarcity was justified. It was officially stated to be the result of vital need to conserve shipping. Yet any fairly practical mind, even one far removed from the heart of the difficulty, probably could have devised a more effective solution by limiting the long extraction requirement to home-grown wheat and thereafter fortified the dark product with fine high-grade Canadian white flour to the maximum amount available. A further advantage would have been saving of the shipping space on the animal-feed content of long extraction flour.

Failure to adopt this simple device and thereby make "war bread" compulsory may be hailed as a victory by the bread reform faddists of Britain, but it surely was not the most economical course, even taking no account of the public dislike for the darker and coarser loaf and the possible effect upon morale.

It properly may be said that we in this country, blessed almost equally with Canada in availability of virtually inexhaustible supplies of fine bread wheat, were pioneers in choosing the war emergency as a time for inaugurating a widespread bread reform. But it also is to be said for the movement here that it was not in the beginning a backward step toward dark bread but merely a strongly, scientifically supported plan to make white bread even better by raising its dietary level through introduction of desirable vitamins and mineral elements. The dark bread propaganda, long if somewhat fitfully slumbering in the purlieus of books and nutritional theory, suddenly awakened to what it mistook for golden opportunity and joyously thumbed itself a ride on the enrichment calliope. The result of this was, as everyone now knows, substantially to slow down progress of the enrichment program, which already had a sufficiently difficult task in hand without undertaking to carry the added weight of dietary theories which consumers long had refused to accept.

As to the matter of timing: While these comments from the beginning wholeheartedly favored the enrichment program—save for certain reservations as to government procedure in promoting the great cause—our own strong preference would have been to undertake the reform in time of peace and on its own merits rather than to attach it as a rider to the "national defense" program and summon all good patriots to eat and be filled so that they could thereafter repel the enemy with increased vigor and enthusiasm. That "war" appeal, together with the promotion of enrichment so largely as a less worthy *substitute* for the high, holy and sacrosanct darker product of nature's beneficence has, in our judgment, been an unmerited drag on the whole effort.

Quite clearly the relative merits of white and whole grain flour and bread still are so much matters of opinion that they are actively debated by competent nutritional and medical authorities. We now know, although still in the twilight of scientific experimentation, that certain desirable vitamin and mineral elements are discarded with the outer coating of the wheat berry. Science is not so clear as to their assimilability when left in; and that their replacement with synthetics still is in the experimental stage is evidenced by continuing discussion of changes in the formulas.

We also know that the roughage discarded in the milling of white flour has certain merits in the intestinal apparatus, chiefly, however, in its action as an irritant. We also know that this irritant action so easily may run amok that the regular eating of coarse bread by children and the aged is likely to result in serious intestinal disturbances and that its exclusive eating even by normally healthy adults should be undertaken with discretion, if not actually with medical counsel.

Yet, so great is the present upheaval among all of the affairs of mankind and so many the ideas which distraught people are willing to take a shot at, that we find great nations infinitely blessed with overflowing bins of wheat willfully trying to put people on a "war bread" diet. Unnumbered millions in Europe now are existing, to the extent that they can get it, on black fodder euphemistically called bread, and many of them would exchange their most cherished possession for a single wholesome white loaf. But we on this continent, blessed beyond dreaming with a plenitude of these same loaves, are decreeing them as not good enough and appealing to our own people to turn back to dark bread and so help to win the war.

We freely, even proudly, admit a bias in these things. To us a wheaten loaf, clean, white and pure, tasting of the grain, represents the uttermost in wholesome food. To the extent that research finds it lacking in completeness of nutritional merit, it is fair and altogether desirable that science, as it becomes reasonably sure of its ground, should supply these lacks. But, as we see it, there is no reason why this process should be needlessly carried on to willfully lowering the color, quality and palatability of the loaf. Rather should good, white bread be eaten in lands where a generous Providence has supplied it in plenty as the Bread of Thanksgiving, eaten with a prayer that its blessings soon may be restored to the millions of hungry everywhere in the world.

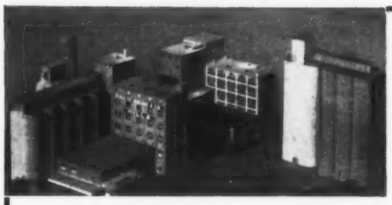
——BREAD IS THE STAFF OF LIFE——

CONVENTION BEGGARS

WE recently have received an extra heavy run of letters enclosing begging communications from associations for donations to help pay convention expenses. Unhappily, too many of these come from overenthusiastic committees of organizations of bakers.

There was a time, back yonder, when we kept a little fire steadily burning under these panhandling boys with such effect that several of them retired their tin cups from service. The trouble was that the victims of the high-powered solicitation refused to stand hitched. Field salesmen always were ready to front with their bosses for donations because a customer was chairman of the finance committee or something. As a result we found ourselves out in front waving an ethical flag and perhaps offending somebody now and then, while the lads whose cash boxes and tempers we were trying to defend continued to slip the convention committees the little ten to twenty-five dollar tips. Some of the panhandlers—we have a characteristic letter before us—even began to get tough about it and imply that birds who did not kick in would get what's what.

So we have no intention to resume campaigning. We do insist that the practice is unworthy of baking or any other self-respecting industry, that the people who do the begging are lacking in self-respect and, finally, that the victims who permit themselves to be shaken down are in great need of some B, or perhaps an occasional shot of niacin to pep up their morale.



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A Belated Report from Napoleon's Grenadier

By C. C. ISELY

IMMOBILIZATION of Hitler's panzers by Arctic cold is understandable to a boy on a western wheat farm accustomed to stubborn tractors or who, perchance, has spent an hour trying to get a reluctant truck to fire in sub-zero temperature.

One such lad, on a recent bitter January morning, observed expertly, "They say those Germans are using vegetable lubricating oils. No wonder their big tanks are stalled."

He rubbed his cold hands and then remarked, "That fighting is making a desert out of the farms that should produce wheat, isn't it? What is it they call it, scorched earth?"

He was thoughtful a moment. "I hadn't thought of it before, but it is something like those big shots in Washington demanding that we plow up this volunteer wheat. Why, if Hitler is in trouble with his tanks on account of poor oil, he may blow up quicker than the experts think, and how welcome this wheat would be then!"

The conversation turned to Napoleon's loss of nine out of ten of his men on these same Russian plains, and this recalled an ancient tale told to my grandfather by a member of Napoleon's Old Guard, a story particularly pertinent in these days of gaunt starvation and grandiose food production plans, of fanatical devotion to Hitler, of fantastic propaganda to bolster morale.

Grandfather, a Swiss mountaineer, worked in a foundry at Courrendlin, in the Jura, 100 years ago. A fellow workman, David Abraham, had followed the Corsican all the fateful years. Inevitably he had a story to tell, for he helped repel the wild charge of the Mamelukes at the Pyramids, and survived the snows of Moscow to refuse to surrender at Waterloo.

Apparently, my grandfather was not overawed with any glamorous idea that Bonaparte was a demigod. He evidently took pleasure in tantalizing his fellow laborer by casting jibes at his "Little Corporal." He even called him a murderer. His caustic remarks would stimulate the old guardsman, David Abraham, to renewed pledges of fidelity and devotion to his fallen chief.

In fierce contempt of younger men who would disdain to undertake such high adventure, the old veteran waved his arms and clenched his fists expressing his undying fealty to the victor of Marengo and Jena and Austerlitz. David Abraham must have been in his late fifties, but, like the childless hero of Schumann's "Two Grenadiers," whose devotion is still sung by high school soloists, he was all aflame to follow his "Emperor."

My grandfather would re-enact the scene for us. Depicting the fervor of the old cavalryman, he would lean upon a chair and, mimicking him in rich Swiss patois which is about as different from German as Lowland Scotch is from English, quote: *"Wen ez yetz-a-ware. . . . If it were now . . . I would again follow him!"*

Abraham had a harrowing story to tell of the retreat from Moscow, and it compares with the stories of Hitler's overmatched and benumbed panzer divisions abandoning their equipment and frostbitten wounded in wintry drifts.

As a cavalryman under Ney, fighting the persistent Cossacks, Abraham had at least half a chance to forage and he also could better observe. He related how the abandoned infantrymen would stack arms at nightfall. To keep warm they would form large solid bodies and hug each other like swarms of bees. In the morning, those on the outer edges, frozen stiff, would be pushed away while the rest of the army marched somberly on across the pitiless snows. The old guardsman lived to tell of fabulous prices, five francs, a dollar, paid for an egg or for a slice of bread.

Like Hitler and Mussolini, Napoleon, too, made a thrust at Egypt, expecting to detach India. My grenadier was in that expedition. The absurd tale he told of the method used for capturing elephants in Egypt is on a par with the engaging yarn published in September of elephants in the Leningrad Zoo squirting water on incendiary bombs and emphasizes the impression that the opportunity to get accurate information was very limited in the world in which they lived. He related that these wild beasts rested by leaning against forest trees. If ever they fell on the ground, they could not rise again without help. Elephant hunters, therefore, partially cut the trees, near the base, against which these animals were accustomed to recline. When the elephant came for a few hours' sleep and rested its weight against the tree with a partially severed trunk, the tree crashed to the ground. The poor beast, perforce, fell also and, unable to rise, according to the story-teller, was easily captured and tamed to serve man.

Such credulity evidently served Napoleon in organizing the campaign against Russia. Even then, as now, it was essential to secure popular support for such a far-flung enterprise with its many too apparent hazards. To fill the ranks of his "Grande Armie" he conscripted young Germans from Wurtemburg and Saxony. He used one effective bit of propaganda to stimulate the confidence and the zeal of Frenchmen, and to David Abraham this must have been a convincing argument. The old guardsman explained that Napoleon proposed, after vanquishing Czar Alexander, to fetch a compass and get around the "Wet Ditch" which separated the white cliffs of Dover from Calais and march to England on dry land.

I knew my geography well enough to point out that such a detour was impossible, but, much as my grandfather distrusted Napoleon, my boyish objections did not prevail. He shook his head, for he was firmly impressed that Abraham must have been justified in his confidence

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in the Corsican's plans. It never occurred to either of them that the proposal was merely the regular grist from the ancient propaganda mill. If I had been a better reporter and not so determined to keep the geography straight, I might have retrieved from my hoary grandsire an elaborate account of the devoted grenadier.

After the disaster at Leipzig, the following summer, after the return from Elba, Abraham, still with Ney, hastened to crush Wellington at Waterloo. He participated in the brilliant last charge of the Guard. His version of the Old Guard's defiance to the demand for surrender, following the repulse at the sand pits and the sunken road, was not the classic: "The Guard can die, but not surrender." He asserted that their more cryptic vaunt was "Come take our swords!"

Growing to young manhood in the backwash of the post-Napoleonic depression, my grandfather had less than one month's formal schooling. He was nevertheless a shrewd observer of men. He possibly was possessed of that Gaelic quality, a sixth sense not available to more ponderous Englishmen, which J. M. Keynes found in Lloyd George. Although he lived in an atmosphere that venerated the Corsican, and though he admired the dauntless grenadier, none of that adulation impressed him.

This is surprising, for Napoleon's aura dazzled great and small. Even after his star had fallen in the disastrous Russian campaign, the allied generals, fearful of his invincibility, dallied in coming to grips with him at Leipzig and hesitated before dealing their mortal blows at Waterloo. Notwithstanding my grandfather's low rating of Bonaparte, my mother used to say that, as a girl, she "worshipped" Napoleon. So universal and persistent was that spell, that Wendell Phillips' extravagant apostrophe to the Corsican was still published 50 years ago in school readers and in collections of rhetorical selections to be used in academic recitals. There are those who still remember the polished periods of this eloquent New England orator, for not more than 45 years ago I elected to memorize and recite:

"He is fallen! We may now pause before that splendid prodigy which towered above us like some ancient ruin, . . . whose frown terrified the grace its magnificence attracted. . . ."

Since Phillips was an almost fanatical protagonist of freedom, it makes one wonder if and when "Der Fuehrer" is disarmed there may be someone who will thus pile mountains of adulation on the ruthless corporal of Berchtesgaden.

——BREAD IS THE STAFF OF LIFE——

Average Family's Food Bill Estimated

The average family spends $37.45 a month for food, according to a survey, *Family Food and Grocery Merchandising*, published by the research department of Crowell-Collier Publishing Co., New York.

The volume gives a breakdown of how the average family's food bill is spent. The average monthly expenditure for meat is $9.67; for dairy products, $9.46; for vegetables and fruit, $8.50; for bakery products, $3.43; for general line groceries, $6.39, and for nonedible grocery items, $1.75.

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has the wheat germ milled in. The method is successful and the bread produced from Enerjo is in popular favor. Bakers are taking advantage of this *flavor* enrichment in pushing bread sales. The results are noteworthy.

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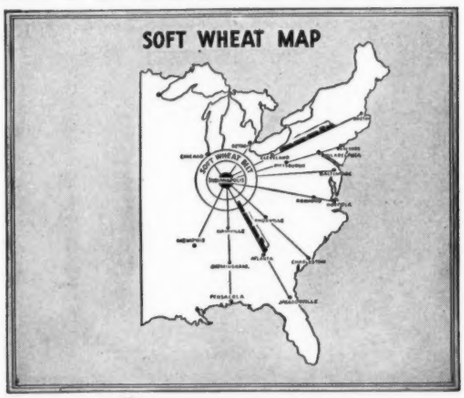

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British Flour and Bread Trades Reconciled to Wheatmeal Order

LONDON, ENG.—More than a year has passed since the flour trade and the British public heard the first suggestions that the government would seize the opportunity, caused by its wartime control of flour and milling, to impose on the people a brown loaf instead of the white loaf which had constituted about 95% of the total consumption. Certain scientists and members of the medical profession supported the idea on dietetic grounds, and among those who were converted was the minister of food himself, Lord Woolton, who tried by advertisement and persuasion to popularize the bread made from flour of 85% extraction, but was forced to admit that his efforts had failed and that the great majority preferred the white loaf.

Notwithstanding all this the British public is now going to eat "national wheatmeal" bread made from the despised 85% extraction flour. Nor is it likely that there will be much grumbling about it, for the very simple reason that in making the change the Ministry of Food has made it plain that it has been actuated by the necessity of having to save shipping space in the transport of foodstuffs. Wheat is one of the food commodities which requires many ships, and as the minister's spokesman told his hearers at a press conference on March 11, when the change was first made public, it bulks very large in shipping requirements. Unofficial estimates of the tonnage to be saved by the increased rate of extraction of flour range from 700,000 to 775,000.

The spokesman said that the reason for the change was that every ship was wanted to go into offensive action and that every ship released from food carrying aids the fighting forces of ourselves and our allies. At the same time he appealed to the press to advertise the fact that saving could be increased by people becoming bread conscious and preventing all waste of bread. Holding up a slice of wheatmeal bread he said that it weighed one ounce. If everyone in the country were to save that quantity daily the saving in shipping space would amount to 400,000 tons in the course of a year.

He was questioned by a trade press representative regarding the huge security stocks of flour, which are stored throughout the country, as to whether the 85% extraction flour would keep sound seeing that it contained, unlike white flour, part of the germ. The answer was not very reassuring. The millers, it appears, had been instructed to produce flour with a reduced percentage of moisture and it was intended to turn over the security stocks more quickly than had been the practice with white flour. Flour merchants, however, express concern at such a risk being taken with a foodstuff so vital to the country's security.

The decision of the government respecting flour seems to have been taken without any regard to its consequences to the trade in imported flour. Importers did not receive any information as to how they were going to dispose of allocations of white flour under the regulation that after March 23 licensed bakers could only receive flour in the proportion of 25% of white and 75% of wheatmeal. They do not yet know what the future policy of the ministry is going to be with respect to imports of flour. If Canadian mills are going to be required to supply 85% extraction flour, based on the ministry's formula, the difficulty in regard to the presence of wheat germ is obvious.

Another question raised at the press conference was whether it was intended to add vitamin B_1 to the wheatmeal. To this the answer was "No." Also it was asked whether self-rising flour would come under the order and whether restrictions would be placed on the purchase by the housewife of white flour. The answer received was that there would be no restriction placed on purchases of white flour for household use until after present white stocks were exhausted. It has since transpired that a self-rising wheatmeal flour is to be placed on the market, but current stocks of white self-rising flour may be used up.

The Ministry of Food has announced that it will shortly issue a statutory order giving a new definition of "national wheatmeal," incorporating technical instructions based on the best scientific advice, to insure the uniform quality of the flour. It has been claimed in the past by certain medical and scientific gentlemen, in Parliament and elsewhere, that millers did not conform to the statutory prescription. The proposed new statutory order no doubt is intended to remove any loopholes and to remedy any misunderstanding on the point.

THE BAKERS' VIEWPOINT

"Wheatmeal Wins" is the heading of an editorial in the *National Association Review,* official journal of the National Association of Master Bakers, Confectioners and Caterers. The writer says:

"Revolutionary changes in bakery practice are being enforced by government decree with startling rapidity. . . The trade is not wholly unprepared for the new order, although its issue, following so quickly after the reassuring statement of the parliamentary secretary to the Ministry of Food in the House of Commons last week, is surprising. Indeed, looking back it is quite apparent that the decision on the subject was reached more than a month ago when the millers began to restrict deliveries of flour. At the same time this is not an occasion for quibbling. The change is based on the circumstances of the moment and the special need to save every inch of shipping space for the carriage of munitions. The trade, we are sure, is ready to respond, even though the new policy may lead to a reduced consumption of bread at the beginning, and, we may add, to considerable waste both in producing factories and in the homes of the people."

The editor of the *British Baker,* London, says in his editorial on the subject, headed "Exit White Bread":

"Lord Woolton was thoughtful enough to make it clear in his statement in Parliament that, despite the clamor of the wheatmeal enthusiasts, 'the nation has made it clear it prefers white bread,' which is the foundation of many an argument we have advanced when discussing the white bread versus wheatmeal bread controversy which has raged in the lay press for so long. Now, however, it is not the scientists who have won the day so much as the demands upon shipping space."

The writer concludes by echoing Lord Woolton's opinion that the British people will accept the withdrawal of white bread and the substitution of the national wheatmeal loaf with loyalty, even enthusiasm, and that bakers will, in the national interest, exert every effort to produce the best loaf possible.

A baker contributor to the *British Baker,* writing under the pseudonym, "A Boy Blowing Bubbles," advocates acceptance of the new flour with cheerfulness. He says that wheatmeal bread is less trouble to make than white, and that if machinery should break down it is a less laborious task to make a sack of wheatmeal flour into bread by hand than a sack of strong white flour.

SUSPENSION OF FORTIFICATION

At the press conference on March 11, when it was disclosed that white flour and bread would shortly be banned, a question was asked whether it was the intention of the Ministry of Food to continue the addition of vitamin B_1 to white flour or whether it would automatically come to an end; in other words, whether the scheme would be scrapped. The reply was that the whole matter would have to be reconsidered, as the vitamin B_1 concentrate could not now be used for its original purpose.

In reply to a question as to the prospects of potato flour being included in the bread flour it was said that this possibility might arise.

——BREAD IS THE STAFF OF LIFE——

LONDON CORN EXCHANGE DIVIDEND

LONDON, ENG.—The annual general meeting of the Corn Exchange Co., London, was held in London on Feb. 12, the chairman of the company, Robert G. Taylor, presiding.

In moving the adoption of the report and accounts the chairman referred to the damage sustained to the premises of the Corn Exchange by enemy action in 1941 and the consequent loss of revenue. He gave particulars of this loss and in recommending a final dividend of 4% said he feared it would be impossible to maintain this rate under present circumstances.

Business is being carried on in the old quarters. The market has been held regularly three times a week, as always, in spite of the damage and consequent inconvenience, even when the floor was littered with debris.

——BREAD IS THE STAFF OF LIFE——

CANADIAN BAKERY PROFIT DOWN

TORONTO, ONT.—Consolidated Bakeries of Canada, Ltd., shows a net profit of $207,530 for 1941, according to its report. This compares with $223,470 in the previous year. Gross operating profit was $447,549 compared with $436,895.

• YOUNG AIR MAN •

Among the young men of the import flour trade who are serving their King and Country in the fighting forces, is Gordon Stanley Holloway, the son of Stanley William Holloway, senior partner in Coventry, Sheppard & Co., flour importers of London. He had just joined his father's firm when the war began, and although only 18 years of age he offered himself for service with the Royal Air Force. He entered upon his official training in January, 1941. At first this training consisted of general duties followed by 18 weeks in the Technical Training Wing of the R.A.F. as a flight mechanic (aero engines). On passing out of this training successfully he was posted to a Boeing flying fortress squadron. This was followed by a course in a technical training camp as a fitter on aero engines, which he has just completed. Now he is working with a maintenance unit and has the good fortune to be stationed within easy reach of his home so he is able to visit his parents fairly frequently. He is a very enthusiastic aircraftsman and he hopes to find himself among a bomber's crew as a flight engineer air gunner on exploits against the enemy.

Canadian

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Manager Canadian Branch
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Quotations Cited

Comparison of Canadian Flour Prices During Two Wars Favors Control, Observers Report

TORONTO, ONT.—Figures showing prices for flour in Canada during each of the years of the war of 1914-18 and for the years of this war to the end of 1941 afford some interesting comparisons. Tabulated to show the high, low and average quotations for top patents by years these figures are as follows:

	Average	High per bbl	Low
1914.....	$5.88	$6.60	$5.30
1915.....	6.97	8.10	5.75
1916.....	7.70	10.50	6.50
1917.....	11.55	16.50	9.40
1918.....	11.09	11.50	10.85
.....			
1939.....	4.93	6.25	4.10
1940.....	5.60	6.35	4.95
1941.....	5.29	6.35	5.05

The lesson of these figures is all in favor of control, observers say. This war found the federal government determined to prevent inflationary movements in the cost of living. As it happened, unfortunately for the wheat growing farmers of the western provinces, prices for wheat were abnormally low when war came and there was an enormous surplus as well. In such circumstances wheat could not have got very far on a rising market. Demand decreased in the first year of war and the number of countries buying decreased. Actually, control has meant better prices to the wheat growers than they could have obtained in an open market, while at the same time it has made speculative operations by private interests unprofitable.

The spread between top patent and bakers grade in the period from 1914 to 1917, as quoted by THE NORTHWESTERN MILLER in its Canadian correspondence for those years, works out as follows:

1914, per bbl	70c
1915, per bbl	70c
1916, per bbl	70c@90c
1917, per bbl	70c@ $1

In 1918 flour was put under war regulations by the government at Ottawa and the price was fixed at $11 for top patents. The quality of flour was also fixed on Feb. 1 of that year at 76% extraction. The United States, which had entered the war in 1917, took similar action, thus bringing flour milling in the two countries under uniform control. Customs duties were also taken off in both countries.

The percentage of extraction for Canadian flour mills was reduced to 74 in 1919. Mill prices for that grade in those two years ranged $10.85@11.50 bbl, jute. In 1920 the price climbed to $14.75 bbl, the highest reached with the exception that in one week of May, 1917, the quotation was $16.50 bbl. Peacetime conditions and milling grades were restored in August, 1920.

To get the picture for that war complete one must consider what happened to millfeed during those same years. The following notes on this aspect have been compiled from files of this paper. Obviously, these products were not brought under control.

In 1914 prices started at $23 for bran and $25 for shorts and climbed to $26 and $28.

In 1915 prices ranged $21@28 for bran and $23@28 for shorts.

In 1916 prices ranged $20@32 for bran and $24@36 for shorts.

In 1917 prices ranged $32@43 for bran and $35@45 for shorts.

In 1918 prices ranged $35@37 for bran and $40@42 for shorts.

In 1919 prices ranged $35@45 for bran, mostly the latter, and $44@52 for shorts.

In 1920 prices reached a high of $54 for bran and $61 for shorts.

As those who were actively in the flour and feed trades of Canada in those years will remember, substantial profits were made by almost everyone. Farmers also made good money out of their wheat, especially in the years which followed active hostilities. Buying countries had no choice but to pay the prices asked while they were trying to repair damages wrought by war.

—BREAD IS THE STAFF OF LIFE—

WHEAT STORAGE PRESENTS PROBLEM IN AUSTRALIA

TORONTO, ONT.—Recent reports by the Canadian trade commissioner in Australia indicate that the storage problem for wheat in that country is causing concern. With marketing difficulties increasing and probable inability to dispose of this season's crop the storage capacity of the country will be heavily taxed.

Unsold stocks of wheat carried forward from previous seasons amounted on Jan. 3 to 18,500,000 bus. In addition it is expected that from the 1941-42 crop the Wheat Board will receive 145,000,000 bus, making a total of about 163,000,000 bus to be disposed of during 1942. On the same date in 1941 the corresponding figure was 89,000,000.

Wheat growers have been prepared for some form of compulsory reduction of acreage. The government's plan to this effect has now been announced and reduces production in western Australia to one third of normal. No reduction has been made on other states except as in the present wheat stabilization plan.

The Wheat Board quotation on millers' requirements is approximately 69c Canadian per bushel, bulk, on trucks at terminals. Owing to shortage of calico bags flour exports are now in 150-lb sacks when tonnage is available.

—BREAD IS THE STAFF OF LIFE—

RICE WEEVIL UNDER CONTROL

VANCOUVER, B. C.—Infestation of stored grain by rice weevil has occurred in Vancouver as elsewhere in Canada, but the affected grain has been thoroughly fumigated and the whole situation is now well under control, according to H. E. Gray, of the Canadian gvoernment's insect control service. He declared that some recently published statements indicating that price weevil infestation was general were misleading and grossly exaggerated. Actually there had been very few infestations, he said. Widespread control measures were carried out last season against grain mites in western Canada and, according to Mr. Gray, the same working arrangement this year will enable prompt action to be taken with respect to any and all insect problems.

—BREAD IS THE STAFF OF LIFE—

"VITAMINIZED" FLOUR MAKING SLOW GAINS IN CANADIAN TRADE

VANCOUVER, B. C.—The new "vitaminized" flour moved to the trade in substantial quantities at the start of the month but many dealers report that repeat orders have not come in as fast as anticipated. This is due in some measure, according to flour men, to the fact that Canadians are somewhat slow in adapting themselves to new ideas.

There is a feeling among some dealers that as soon as the public is educated to the benefits of the new flour, there will be a substantial buying rush. Other dealers are still apprehensive about the situation and fear that the public will shift from ordinary white bread only when they are practically forced to.

• IN THE R.A.F. •

One of the Canadian airmen attached to an R.A.F. squadron, Sgt. Pilot W. Ken Wylie, 23, is a former employee of the Maple Leaf Milling Co., Ltd. He was a member of the Winnipeg office staff. Joining the R.C.A.F. in November, 1940, he went overseas on Aug. 30, 1941. He is a son of W. J. Wylie of the Reliance Grain Co., Ltd.

CANADIAN WHEAT, FLOUR EXPORTS IN FEBRUARY BELOW FIGURE FOR 1941

TORONTO, ONT.—The Dominion Bureau of Statistics reports exports of wheat and wheat flour in February at 15,928,377 bus, compared with 18,110,049 in the corresponding month of 1941. These figures include overseas clearances and exports to the United States.

Although showing a decline for February, exports for that period of the crop year ending with February are considerably in advance of the same months of previous crop year. The quantity is 120,865,681 bus compared with 87,983,867.

After making allowance for domestic requirements of 140,000,000 bus, the amount of Canadian wheat available for export and carry-over on March 1 totaled 518,000,000 bus. The bureau further states that there is evidence that March exports this season are also trailing those of the corresponding month a year ago and the statistical position on April 1 is likely to show some deterioration as compared with March 1.

—BREAD IS THE STAFF OF LIFE—

CANADIAN MILLS FACE BACK PAYMENT POWER OIL TAX

TORONTO, ONT.—Some flour mills of Saskatchewan are in trouble with the provincial taxation authorities as a result of the muddled way in which a tax on oil used for power purposes was administered last year, according to reports. Some mills were billed for this when the oil was delivered while others were not.

In the absence of bills they know nothing about the tax. Oil agents who were supposed to collect neglected to do so. Moreover, some authorities had advised that only oil used on highways was liable. The original intention of the government was that the proceeds of this tax should be used solely for upkeep of highways. Moreover, the tax did not apply to colored petroleum products, the kind used by flour mills.

Despite these facts a belated attempt is now being made to collect these charges, though no way in which they can recover the money from the farmers who got the benefit is open to the mills. Mill owners have indicated their intention to be fair with the government but they also expect fairness in return.

—BREAD IS THE STAFF OF LIFE—

CANADA'S WHEAT INCOME LESS

WINNIPEG, MAN.—Wheat represented more than 70% of the prairies' cash farm income in the 1920's, but only 43.6% in 1941, according to a review by the statistics branch of the Dominion Bureau of Statistics. In Saskatchewan, the chief producing province, wheat income was 83.1% of total farm income in 1926 and 56.1% in 1941. In Alberta the drop was from 66.7% to 36.7%, and in Manitoba from 46.6% to 31.9%.

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Defense of Food

(Continued from page 7.)

grow a seed plot of an acre or so to find out how it reacts under local soil and climatic conditions for a year or two before deciding to abandon an old variety completely. The adage, "Be not the first by whom the new is tried, nor yet the last to lay the old aside," still is decidedly sound advice.

3. Early planting, within reason, will help to reduce damage which may be caused by unfavorable climate conditions, weeds, diseases or insects later in the growing season.

4. Seed treatment is a good cultural practice. Properly controlled treatment of diseased seed always pays big dividends. Treatment of good, clean seed may not always show increased yields, but seed treatment is cheap insurance and should be a regular cultural practice every year.

Losses from covered smut and seedling blights are practically controlled by treatments with Ceresan. Loose smut is taking an increasing toll among the small grains every year and can be reduced by growing resistant varieties whenever available, or by using the hot water treatment under carefully controlled supervision, for a seed plot each year. Some seeds carry spores of disease organisms on the outside, and in others the disease organism is inside the seed and grows in the tissue of the seedling the following year. Chaff and broken plant fragments also carry disease (flax rust and pasmo disease are spread in this manner) and a thorough cleaning of the seed is a required disease prevention method. In fact, thorough and careful seed cleaning and germination tests will go a long way in solving many problems, such as weed control, diseases, rates of planting, and many more. Dockage and trash removal also increase the market value of all grain.

5. Proper methods of planting. Accurate control of the depth at which seeds are planted has a direct correlation with the development of certain diseases, the seedling survival, and the vigor of the resulting plant. Planting rates most favorable for high production have been worked out by the scientists and can be obtained.

6. Proper rotation of crops. It has been known for many years that if certain crops are planted after certain other crops, the chances are much greater that diseases will be more severe, so, in addition to better soil conditions and higher yields resulting from following the recognized rotations, the disease problem presents itself.

7. Fertilization. Fertilization of crops to insure maximum returns is a science in itself. In the Middle West the use of commercial fertilizer is really only beginning. Susceptibility to disease is definitely lessened if the plants can obtain a properly balanced food supply. Healthy plants can withstand the attacks of diseases and unfavorable climatic conditions much better than weak, sick plants. In addition, the value of plants as food for men or animals is much greater if adequate supplies of all the necessary plant food elements are available to them. Even if some farmers feel that they cannot afford commercial fertilizer, the average farmer could take better care of the manure produced on his farm and see that it gets on the land in the condition in which it will do the most good. Before a farmer says he cannot afford commercial fertilizer, it would be well for him to try out a few bags of phosphate and potassium fertilizer in a trial plot through the middle of his field. He might be surprised at the results, for much of our land needs additional amounts of these elements.

8. Proper cultivation. Some of the old theories of many deep cultivations and dust mulches have been exploded. Weed control and, through it, the conservation of moisture and plant food, are the main objects of cultivation. Actually, weeds do more damage year in and year out than most other causes. Many weeds are susceptible to, and act as carriers and spreaders of, our common plant diseases.

9. Spraying crops with fungicides and insecticides. Farmers who raise fruit and vegetable crops, including potatoes, usually do not have to be urged to spray to prevent plant diseases and insect pests. Many could do a better job and enjoy greater returns for their labor. There are now some encouraging results from field spraying of certain broadleafed weeds in small grain crops, especially flax, where the quantity and quality of the crop were greatly increased.

10. Harvesting methods affect the market value of crops. Of course, climatic conditions have a great effect on the condition of the crop at harvest time, but proper precautions will prevent injuries through which plant saprophytes or insects can first gain entrance, and later cause great damage.

11. Storage problems are of first importance now, for of what good is it to produce great quantities of foodstuffs if they are not properly protected? Organisms causing storage rots, and insects which destroy stored products of the farm can be largely controlled.

It is fitting that at this time the best scientific minds in the nation are working on the problem of making the information on plant and insect control available to every farmer and business man who handles plant products which may be affected. Crop plants, fungi causing plant diseases, and insects are all living organisms. They are exposed to constantly changing combinations of soil, moisture and temperature conditions. Using all the knowledge slowly gathered from every possible source during the years, we are still struggling to catch up with Mother Nature.

Scientists should be justly proud of the work of the plant geneticists in their fundamental work with the determiners of plant characters. Many features of human and animal genetics can now be more intelligently studied because of the work with plants. Corn production has been entirely revolutionized by the introduction of hybrid corn by plant breeders, and wonderful strides in the production of new and better varieties of other crop plants have been made, both agronomically and from a processor's viewpoint.

As has been pointed out, the organisms causing plant diseases are living plants. They naturally are just as susceptible to changes in temperature, moisture and the condition of the soil (host plant) in which they grow as are the crop plants. They hybridize, mutate, and new races of the disease organism are produced, which have just as great chances of becoming better or more virulent pathogens (from the standpoint of the disease) as have

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the new varieties of corn and small grains produced with the help of the plant breeders.

It is a constant battle of wits between Mother Nature and our scientists. Take, for example, the battle which is being waged to control black stem rust, the most destructive plant disease with which growers of wheat, oats, barley or rye have to contend. Practically every year, damage due to this disease causes losses of from a trace to 50% to many farmers. Usually the heavy losses are local and are confined to areas a few miles in extent, adjacent to rust-spreading barberry bushes, or where the grain is very late and the plants are exposed to heavy rust infection.

Every year the wind carries viable stem rust spores from southern Texas and northern Mexico to the great winter and spring wheat growing regions of the United States and Canada. Normally this rust does not increase sufficiently before the grain ripens to cause widespread heavy damage. In some years, however, when the conditions of wind, moisture, temperature, abundance of rust spores, growing stage of grain, and several other factors are exactly right, severe state and nation-wide epidemics occur. Twice since 1915 such epidemics have caused national losses of more than 150,000,000 bus of wheat alone.

The destruction of 32,000,000 common barberry bushes and the elimination of many thousands of local centers of stem rust propagation have had a marked effect, locally and regionally, from Montana and Colorado as far east as Pennsylvania. The introduction and wide use of rust-resistant grains have paid the farmers millions of dollars. Ceres, the first commercial, rust-resistant bread wheat developed by the plant breeders, saved many a spring wheat farmer from ruin. Only after the development and increase of races of the rust fungus to which Ceres was susceptible, did it bow out of the picture in favor of another rust-resistant wheat, namely, Thatcher.

As has been stated, plant diseases are caused by tiny living organisms which have most of the characters of the crop plants, including the ability to hybridize and produce entirely new races. Many times these new types are capable of infecting varieties of crop plants heretofore highly resistant to either parent or any other known race of the disease.

More than 200 races of black stem rust of wheat are now known. All of these races can hybridize on the leaves of the common barberry bush, and this is the *only* place this can occur. Six times as many races of stem rust were identified this year from infected barberry leaves as were found on infected grain collected in fields at some distance from any rusted barberry.

During the past year it has been observed that all of the highly resistant wheat hybrids, and even Khapli emmer, previously immune to all races of stem rust, were completely susceptible to races present in South America. There is no evidence that there is any interchange of wind-blown rust spores between North and South America, but it certainly indicates the necessity for a continuous program for the control of stem rust. Whether it is barberry eradication, plant breeding, proper fertilization, or better cultural practices, the problem is so complicated and the potential danger to our chief human and animal foods so great that nothing less than an all-out fight from every angle can be considered.

GOLDEN LOAF FLOUR
A Flour With an Outstanding Reputation for Uniformity and High Quality
TENNANT & HOYT CO.
Established 1901
2,000 Bbls Daily Capacity
LAKE CITY, MINNESOTA

The ROBINSON MILLING COMPANY
SALINA, KANSAS

Red River Milling Company
FERGUS FALLS, MINNESOTA
Montana and North Dakota Wheat used exclusively
Daily Capacity, 1,000 Barrels
"CERES" Highest Quality Hard Spring Wheat Flour
"No. A1" Highest Quality Hard Spring Wheat Flour
DISTRICT SALES OFFICE:
510 Hodgson Building, MINNEAPOLIS

"Sweet Cream"
"Very Best"
Quality Flours
W. J. JENNISON CO.
MINNEAPOLIS, MINN.

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

TO ANXIOUS ADVERTISERS.—No, there is nothing for you to worry about on the score of printing inks—nor for us, either. *Printer's Ink* sums it up thus for advertisers, publishers and packagers:

1. Will government restriction soon cut off supplies of ink?

Answer. No. So far, despite rumors and hysterical bulletins issued by advertising associations and others, there has not been a single government order restricting the *use* of printing ink—black or color.

2. Must we soon abandon color printing because of shortages in colored inks?

Answer. No. Certain colors have been affected, of course, by raw material shortages. But up until now there has been no serious difficulty in obtaining any color, although color formulations have necessarily been changed in some cases and alternate materials are being used.

3. Will it be impossible to maintain accurate colors reproduction?

Answer. No. Good color matches will continue to be made, even though ink ingredients change. Trade-marks and package colors can be kept the same in practically all cases.

4. Is there any reason to worry about getting black ink?

Answer. No. Newspaper inks are made from mineral or linseed oil and carbon black. These materials are available in abundant quantity in the United States. Even if colors should all disappear, it is most unlikely that a lack of black ink would ever be an important contributory cause to the end of printed advertising. The rumor that black inks will be "brown" is untrue. Lack of toners (such as methyl violet) might affect the appearance slightly, but not enough to concern the reading public.

The first world war embarrassed the printing industry. We had been depending too much on foreign sources for pigments. The ink business went American, and now we make all but a small fraction of our pigments at home.

The big factor affecting the manufacture of color inks today is the metals shortage. General Metals Order No. 1, issued originally by the Office of Production Management, restricted the use of many metals that are the basis of common pigment colors. The metals include antimony, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum and tin. Reds, yellows, blues, greens, oranges, browns, vermilion and dozens of other colors used by the graphic arts are made from compounds of these metals. For example, chrome yellow and chrome green are made from chromium and lead.

Such shortages have created serious ink problems, but they are chiefly problems of the ink manufacturer—not of the advertiser. The ink maker's research laboratories must devise new formulations not requiring defense materials. There are restrictions; there are priorities; there are transportation difficulties. In spite of all this, ink is being produced in greater quantities than ever before to meet the requirements of newspapers and magazines with the highest circulations in history and to meet the needs of packagers who are selling more goods to a growing army of workers with money to spend.

The picture isn't all bright. Advertisers and printers may be told in a few cases that they cannot use *exactly* the color they specify. But from a visual standpoint, advertisers stand a pretty good chance of getting what they ask for. When they want a red, or a blue, or a green, that's what they'll get. They are lucky. And so are we.

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VITAMINS AND VICTORY.—We are indebted to Mr. O. J. Wohlgemuth, vice president and general sales manager of the Oroweat Baking Co., which operates somewhere along the Japanese fringe of this continent, for the following most entertaining ad copy, filched by us from the *California Grocers Advocate:*

VITAMIN BREADS FOR VICTORY . . .
or the real meaning of V and G

"V" means Victory. Victory for the United Nations. Victory for Democracy.

"V" also means Vitamins. To a Baker it means better bread. To a soldier it means more energy. To the American people it means more production. To the Nation and its allies . . . it means a quicker victory.

There is a big goal in the "V" that means Victory.

There is a big pair of Seven-League Boots to reach that goal in the Bread that really has Vitamins.

How about all this Vitamin talk?

Does it really mean anything?

Of course it does. Especially if you get your Vitamins the natural way. More especially if you get enough of them. Extra especially if you have a good tasting food when you get them.

SO WHAT?

So the Oroweat Bakers went further than most to give the people of California . . . a real, natural and fine-tasting Vitamin Bread.

And how did they do all this?

They put in their own bakery a GRIST MILL!

They grind flour from fresh grain . . . every day in their own bakery.

The flour retains the natural Vitamins. The bread has more nutrition elements. It is firmer. It tastes better. It is tops in the variety breads field.

The early American people were a hardy, healthy band of pioneers. They ground their grain in grist mills. They baked a solid, firm loaf of appetizing, nourishing . . . and easily digested bread.

Oroweat . . . has gone a long ways back to get you a better flour and a better bread. To keep the Vitamins . . . and have a finer flavor.

"V" stands for Vitamins and Victory and Variety Bread.

"G" stands for Grist-Mill flour from fresh grain.

V and G stand for Very Good . . . in flavor and food value . . . and put them all together and they stand for OROWEAT.

Makes real pleasant reading, doesn't it? With everything coming out clear and plain and orderly, so that it can be readily understood; and all in tune with the war effort. There just isn't any chance at all of our being licked in this big fracas.

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. . . Dr. Victor Heiser, he of the best-seller, "An American Doctor's Odyssey," has, indeed, come over into the hallelujah corner. The other day, on Isabel Manning Hewson's morning market basket broadcast from a New York station, he came all out for enriched white bread. Not that he thinks any less of whole wheat, but he admits that you just can't get people to eat it. Therefore, since it's vital to the national nutrition to serve us more of the B vitamins, the enriched white loaf is it. The white loaf is what we like, so he'll let us have it . . . The food doctor adds a tradelast for millers and bakers; they're "doing a yeoman service," says he, in enriching bread and flour.

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. . . American Institute of Baking in its current advertising program in behalf of enriched bread (there's a full page in the *Journal of the American Medical Association*) plugs for eight slices a day per person. This is what our soldiers eat, "and your patients," suggests the ad writer to doctors who see this advice, "may profit from this example, especially since they can now obtain enriched white bread, containing vitamins and minerals natural to whole wheat. . . . Make sure that your patients and their families—that those who turn to you for advice—are duly impressed with the necessity and soundness of this good bread in the daily diet." . . . And be sure, too, dear doctor, not to miss the little adjective "white," which will come as quite a shock to you after all these branny years.

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. . . Dr. Morris Fishbein, spokesman for the American Medical Association, thinks there are too many federal agencies dispensing diet information and trying to push programs of nutrition. Addressing a Minneapolis audience recently he said he had observed a great lack of co-ordination among them. The result of such loose organization paved the way for charlatans and faddists—the crackpots who were willing to promote their own products and programs at the expense of their competitors and of the national nutrition. . . . In Dr. Fishbein's opinion, the nutritional advice circulated by half a dozen federal agencies, including the Office of Defense, Health and Welfare, the United States Department of Agriculture, the Children's Bureau in the Department of Labor, the Office of Education and the Office of Price Administration, should be co-ordinated by some competent group of scientific authorities in the field of nutrition. . . . This babel of what-to-eat voices has not often been a chorus, and when it does happen to sing the same words to the same music (we are not now quoting Dr. Fishbein but ourselves) it isn't always by any means the right song.

Contributors' Corner

George Williamson, market editor of the *Commercial Appeal*, Memphis, Tenn., for many years has been correspondent for THE NORTHWESTERN MILLER and two of its associated publications, FEEDSTUFFS and THE AMERICAN BAKER. As might be supposed, the most outstanding quality of

his journalistic performance is his ability to peer about him in the crowded and often clamorous forums of trade and see quickly and tell rapidly and clearly just what is under the noise and clatter and why. His market specialties are grains, feeds and cotton. He confesses that when he began reporting markets back in 1903 on the *Memphis Morning News* (later he was with the *News Scimitar* and the *Memphis Evening Appeal*) the first thing he had to learn was the difference between a bull and a bear. From such a kindergarten he climbed quickly to the post graduate degrees.

Mr. Williamson was born at Milan, Tenn., in 1876. He has been married 36 years—to the same wife. He is a Methodist in faith, but beyond that affiliation is not much of a joiner. That he is a gracious fellow with a supply of tact is shown by his remark that his "most pleasant trade journal affiliation is with THE NORTHWESTERN MILLER publications."

P. H. SCHROEDER HEADS NEW MEXICO BAKERS

Higher Bread Prices Predicted at Albuquerque Meeting—Optimism Expressed in Sugar, Paper Discussions

ALBUQUERQUE, N. M.—P. H. Schroeder, of the Cottage Pure Food Shop, Albuquerque, was elected president of the New Mexico Bakers Association for the coming year at the fifth annual convention of the group held here March 28. Mr. Schroeder was vice president of the association last year. Other new officers are H. H. Anderson, first vice president, and C. E. Bowman, second vice president. G. D. Stephens, Superior Baking Co., Las Vegas, again will serve as secretary-treasurer.

Retiring president J. G. Young, Surebest Bakers, El Paso, predicted an increase in bread prices during 1942 in his address before the convention. He said that bakers staying in business during these emergency days are going to be more efficient and successful than ever before. He also predicted that women would work in the bakery shops in place of the men who are going into the army, navy and defense plants.

L. J. Todhunter, head of the L. J. Todhunter Co., Denver, Colo., spoke on equipment for bakers, reporting on the present supply picture. He expressed the belief that bakers will be able to get parts for repair purposes to keep their shops in operation, even though it might be impossible to buy new equipment because so many of the bakery equipment firms have gone into war production. Mr. Todhunter stated that bakers can continue to slice bread more economically than the housewife. He pointed out that only 16 tons of steel were used last year in the production of bread slicers, whereas if the housewife were to slice her own bread, she would have to purchase bread knives and the baker would have to purchase new bread pans, thus using more metal than is used at present.

The tire situation for bakers was reviewed by Ralph G. Christman, retail supervisor for the B. F. Goodrich Co. He urged bakers to take care of the supply they now have, for a let-up in the rubber shortage cannot be expected until 1943. Better care can be taken of tires, he said, through care on the part of drivers and good vulcanizing jobs when tires are broken. Mr. Christman said that retreaded tires are practically the only kind the baker will be able to use during the war, and, even after the emergency, he may continue using retreads when he sees the service they give.

The sugar situation was discussed by O. W. Laseter, manager of the Gross-Kelly Co., Albuquerque, who expressed the opinion that the shortage experienced during the past winter was brought on by hoarding, and that the world supply of sugar is adequate. Ralph Lacey, substituting for Jack Donovan, Pollock Paper & Box Co., Dallas, Texas, discussed wax paper, cartons and bags. He also sounded an optimistic note when he said that at present it looks as if we may not have a paper shortage after all. He advised bakers not to overstock their paper supply, because the advertising matter on the wrappers might have to be changed. He also reminded bakers that the government can use the three-inch cylinders on which the paper is rolled, and said that these cylinders should be returned to the paper companies.

Glenn Purdy, operator of Purdy's Bakery, Santa Fe, reported on the safety campaign now being conducted in New Mexico, advising bakers to train their drivers in safe driving. He said that the state speed limit may possibly be reduced to 40 miles per hour. The stale situation and display racks were discussed by Arthur Vos, Jr., Macklem Baking Co., Denver, president of the Rocky Mountain Bakers Association. He said that bakers must cut their stale returns and stop giving away racks to help curtail the rising operation cost. Mr. Vos told the convention that free racks had been discontinued in the city of Denver.

District governors and governors-at-large remain unchanged for next year. Albuquerque was selected as the convention city for 1943.

——BREAD IS THE STAFF OF LIFE——

Millers Are Guests

Maryland Gourmets Enjoy Corn Pone, Spoon Bread at Fete

BALTIMORE, MD.—Foregoing the usual elaborate menu served at its annual banquet in Baltimore, the Les Amis d'Escoffier on March 31 held what was termed a strictly Maryland dinner at the Hotel Emerson.

Honor guests at this year's event were the operators of water mills in various parts of Maryland and a total of 17 of them were on hand to enjoy the dinner. Among them was Major General Milton A. Reckord, in command of the Third Army Corps Area, with headquarters in Baltimore. General Reckord has an interest in one of the water grist mills in Harford County.

Corn pone and spoon bread, made from products turned out in Maryland, were included on the menu and won high praise from the diners.

Les Amis d'Escoffier is an organization of Maryland gourmets which has been holding the annual dinners for the last several years. The menu always attracts wide public attention.

——BREAD IS THE STAFF OF LIFE——

CHICAGO BOARD OF TRADE CHANGES DELIVERY RULES

CHICAGO, ILL.—Directors of the Chicago Board of Trade have ruled that delivery of grain on contracts in railroad box cars, ordinarily permitted in the final three days of a delivery month, will not be allowed under present war conditions. There is a critical shortage in storage space available in public warehouses, it was pointed out, and it is unpatriotic to use railroad cars for the storage of grain.

The resolution adopted by the directors reads: "that under the provisions of Rule 251, the board of directors declares that Rule 282 providing for the regular delivery of contract grades of grain in cars on track in the last three business days in the month in satisfaction of contracts for future delivery made on this exchange be, and it hereby is, set aside, and until further action by the board of directors, no delivery of grain in railroad box cars on track in Chicago in satisfaction of future contracts will be permitted."

CERTAIN FEED SALESMEN ELIGIBLE FOR RETREADS, RECAPS

Representatives Who Make Deliveries, Service Farm Chickens and Stock Included in List B of Regulations, According to the Office of Price Administration

WASHINGTON, D. C.—(Special)—Feed salesmen who make deliveries to poultrymen and livestock growers, and frequently service the farm chickens and stock, especially in communities where no veterinarians are available, cannot obtain new tires or tubes for their automobiles, but are eligible for retreaded and recapped tires, according to an official ruling obtained from the Office of Price Administration by THE NORTHWESTERN MILLER.

Under Section 504 (a) (6) of the revised Tire Rationing Regulations, issued by the OPA on Feb. 19, certain passenger cars are eligible for retread or recapped tires, but not for new equipment. Feed salesmen are included in List B, which covers repaired tires only.

THE NORTHWESTERN MILLER's inquiry of the OPA on behalf of feed salesmen using motor cars for deliveries, asked if "traveling feed salesmen may obtain new tires for their cars" and pointed out that in some states these salesmen do the work customarily performed by veterinarians when the latter are not available.

The official ruling from OPA was signed by Thomas E. Harris, assistant general counsel of the organization, who said:

"Section 504 (a) (6), revised Tire Rationing Regulations, designates such cars as 'List B' passenger cars and provides eligibility for retreaded and recapped tires only."

Paragraph 6 of Section 504, under which the feed salesmen qualify, shows that retreads and recapped tires are authorized for passenger cars used principally to provide:

"Transportation of traveling salesmen who are engaged in the sale of farm, extractive, or industrial equipment, foods, or medical supplies, the distribution of which is essential to the war effort."

LAKE SHIPPING SEASON BEGINS TO HIT STRIDE AS BOATS START MOVING

DULUTH, MINN.—The lake shipping season for 1942 is beginning to hit its stride with reports from lower lake ports that vessels were steadily being moved out of winter berths and rapidly put into operation. In the next few weeks it is expected that the fleet will be in full operating capacity.

Iron ore loading has been on since late March and last week witnessed the loading of the first wheat cargo, some 233,000 bus. Another freighter was scheduled to load but was held up by ice at Whitefish Bay, delaying arrival. It is expected to reach here and take on a wheat cargo early this week.

Little or no boat chartering was reported last week, with the rate on wheat, Buffalo delivery, held at 5½c. Regular hull and cargo insurance will become effective April 15 and may develop something in the way of new charters.

A local official of the bureau of marine inspection and navigation reports scores of men are seeking berths on lake ships without much chance of landing jobs, because there are not enough steamers available to handle the demand for work.

Four railroad executives, representing four major midwest railroad lines, expressed the view while in Duluth last week that the nation's rail transportation system is equal to its defense responsibilities and will adjust or expand to any demands that future prosecution of the war will make.

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Grain Cargo Reaches Buffalo

BUFFALO, N. Y.—The steamer Alex McDougal has the distinction of being the first craft to reach this port with grain during the 1942 season. The boat was sighted four miles out of the harbor on April 3.

WALTER C. HOLSTEIN IS ELECTED TO HEAD MILWAUKEE EXCHANGE

MILWAUKEE, WIS.—Walter C. Holstein, Mohr-Holstein Commission Co., pioneer grain firm here, was elected president of the Milwaukee Grain & Stock Exchange April 6 to succeed E. H. Hiemke, L. Bartlett & Son Grain Co., president since 1940. Carl A. Houlton, LaBudde Feed & Grain Co., and Walter R. Vye, Cargill, Inc., were elected vice presidents, and Harry A. Plumb was re-elected secretary and treasurer.

Mr. Holstein has been associated with the grain trade here for 41 years and has been a member of the exchange since 1906. Since then he has, at one time or another, held practically every post in the organization. His own firm was founded more than 50 years ago by Gustave Holstein, his father, and Oscar Mohr.

Directors elected at the April 6 meeting were Charles F. Coughlin, Robert G. Bell and G. W. Winston. Elected to the board of appeals were E. H. Hiemke, immediate past president, and Edward S. Terry. Paul E. Riebs and Linus J. Beck were elected to the board of arbitration, with John G. Davis and Clarence D. Moll tying for the third vacancy. A toss of coin is to decide which of these two men will be the third board member.

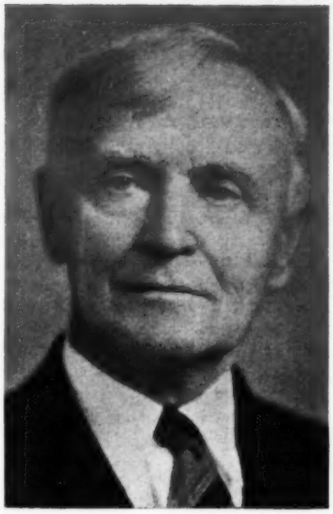
——BREAD IS THE STAFF OF LIFE——

HECKER PASSES DIVIDEND

NEW YORK, N. Y.—Directors of the Hecker Products Corp. at their March meeting voted to take no action on the common stock dividend which is customarily paid. Directors of Best Foods, Inc., which is 71% owned by Hecker, also took no action on the dividend. Guy Lemmon, president, stated that both boards were influenced by the need of conserving cash to meet higher inventory costs and the uncertainty as to adequate provision for tax reserves. In 1941, Hecker Products Corp. paid four quarterly dividends of 15c a share.

Bert Jassoy

. . . discussed specialty breads . . .



Dr. C. O. Swanson

. . . new picture . . .

Betty Sullivan

. . . wheat germ expert . . .

P. Val. Kolb

. . he talks to dietitians . .

Sugar conservation and the development of specialty breads were two topics studied at the recent convention of the American Society of Bakery Engineers. Bert Jassoy, Regan Bros. Co., Minneapolis, was a member of a panel of experts analyzing the problems involved and answered the questions posed by an interested audience.

Dr. C. O. Swanson, whose most recent portrait is shown here, is known to millers throughout the nation. For years head of the Department of Milling Industry at Kansas State College, he is now engaged principally in research there and in writing articles from the vast store of information he has unearthed in his work. His current series in MILLING PRODUCTION and the Milling Production Section of THE NORTHWESTERN MILLER is based upon studies of starch.

The use of wheat germ in commercial bread baking was discussed by Miss Betty Sullivan, Russell-Miller Milling Co., Minneapolis, at the recent convention of the American Society of Bakery Engineers. She appeared on the part of the program sponsored by the American Association of Cereal Chemists, of which she is an active member.

Before the recent annual meeting of the Texas Dietetic Association P. Val. Kolb, of the Winthrop Chemical Co., Inc., gave a sprightly and thoughtful review of the purpose and progress of flour and bread enrichment. He explained the reasons for enrichment, as measured by vitamin deficiencies and the nation's emergency need for better nutrition. Choice of white bread for enrichment was explained as due, first, to its prominent place in supplying the nation's caloric requirements; and, second, to the fact that white bread is a pronounced favorite over all other kinds of bread, particularly over whole wheat. The high extraction breads of World War I were blamed for much of the trend toward decreased consumption of bread in the past quarter of a century. People didn't like and wouldn't eat the coarse war bread, and formed the habit of eating other foods. Enriched white bread, he concluded, provides more food value for one's money than any other food that can be bought.

Personal & Otherwise

NASHVILLE VISITORS

R. H. Drake, Dunlop Milling Co., Clarksville, Tenn; James Dorris, Dorris Milling Co., Springfield, Tenn; W. B. Anderson, formerly owner and manager of the Acme Milling Co., Hopkinsville, Ky., and J. B. Chisholm, southeastern sales manager for the Diamond Crystal Salt Co., Atlanta, Ga., visited among the Nashville flour interests recently.

PACKAGING MANAGER

William R. Moore, Valier & Spies Milling Co., St. Louis, Mo., has been appointed manager of the package department, replacing Second Lieutenant Rosenau, who has been called to the colors.

IN ATLANTA

Floyd Bateman, sales manager Shawnee (Okla.) Milling Co., recently spent several days in Atlanta visiting with his representative, Fred Boardman, Southern States Flour Corp.

IN THE ARMY

Alfred L. Plant, formerly sales promotion manager of the Doughnut Corp. of America and widely known in the baking and allied industries, has enlisted in the United States Army.

ON ACTIVE DUTY

Edward F. Schulz, Philadelphia, Pa., formerly with the Washburn Crosby Co. in that market and more recently with the Standard Milling Co. at Chicago, Ill., is now on active duty with the U. S. Army as a first lieutenant, attached to the Quartermaster Replacement Training Center, Camp Lee, Va.

BACK FROM A TRIP

Loren W. Johnson, manager of the Kansas City office for Cargill, Inc., returned at the end of last week from a trip to Fort Worth, St. Louis and Chicago. He accompanied Julius Hendel, vice president of the company, on most of the trip.

FLORIDA VACATION

David D. Vaughan, of Bemmels-Vaughan, and president of the Chicago Association of Flour Distributors, left April 4 on a several weeks' vacation trip to Florida. R. E. Bemmels, of the same company, has returned from a vacation trip to Hot Springs, Ark.

A DAUGHTER IS BORN

A daughter was born April 4 to Mrs. Maurice Johnson at St. Luke's Hospital, Kansas City. Mr. Johnson is with THE NORTHWESTERN MILLER at Kansas City. The Johnsons have another daughter, 4.

SON KILLED IN SERVICE

Robert B. Brown, for many years active in the macaroni industry and an executive of the Foulds Milling Co., Libertyville, Ill., mourns the loss of his son, Lieutenant R. B. Brown, Jr., who was killed testing an army plane. He was last seen March 24, when he left on a routine test of a new type army pursuit plane, and his body was found March 31 in the wreckage of his ship northwest of San Antonio. He was 23 years of age. His father now is business manager of Kenyon College, Gambier, Ohio, having retired from the macaroni business several years ago.

CALLING ON CONNECTIONS

T. E. Higley, assistant sales manager William Kelly Milling Co., Hutchinson, Kansas, spent last week calling on connections in Oklahoma and Arkansas.

ON SICK LIST

Robert DuBois, of the Boston office of Washburn Crosby Co., eastern division of General Mills, Inc., is confined to his home in Newton by illness.

AT HOME OFFICE

George L. Faber, Chicago manager King Midas Flour Mills, was in Minneapolis several days the latter part of last week, visiting at the home office of his company.

ALL-AMERICAN UNDER ARMS

Robert Morrow, representative for the H. C. Cole Milling Co., Chester, Ill., in Alabama and Mississippi, with headquarters in Birmingham, Ala., was the first southern salesman of his company to be called to the colors. He is stationed at Philadelphia, Pa., where he serves as second lieutenant in the Quartermaster Corps. Mr. Morrow joined the Cole sales staff seven years ago. He is a graduate of the University of Alabama, Montgomery, where he was a star football man, playing with the Rose Bowl teams and making All-American.

RETURNING FROM THE EAST

Arthur E. Kelley, Lyon & Greenleaf Co., Inc., Ligonier, Ind., and J. H. Weaver, Nebraska Consolidated Mills Co., Omaha, visited in Chicago last week. Mr. Weaver was returning to the mill from an eastern trip.

BAKESHOP CALLER

P. Val Kolb, Winthrop Chemical Co., Inc., New York, spent several days in Atlanta calling on bakers.

AT DAYTONA BEACH

Mrs. M. E. Derryberry, of M. E. Derryberry & Co., Nashville, is visiting her son, Paul Derryberry, at Daytona Beach, Fla.

WELCOMED HOME

E. J. Bermel, president Pittsburgh Flour Club, has returned home from a three-month stay at Hollywood, Fla., where he went in the interest of his health. He was given a welcome home luncheon on March 30 at the Moose

Lodge by the members of the club as well as a number of prominent bakers. Among the latter were James D. Williamson and his son, James W. Williamson, president and vice president, respectively, of the Duquesne Baking Co; Howard W. Braun, vice president Braun Baking Co; George E. Drake, president George E. Drake Baking Co; Carl Meckes, bakery owner of Cadiz, Ohio; E. Willard Moore, secretary Bakers Courtesy Club, and G. E. Olsen, Red Star Yeast & Products Co.

ON FEDERATION BUSINESS

Herman Steen, vice president Millers National Federation, Chicago, spent several days in the Southwest last week on federation business.

HONORED

William J. Elliott, who retired April 1 as western traffic manager of Great Lakes Transit Corp., was the guest of honor at a luncheon of the Minneapolis Traffic Club, April 8.

INDUCTED

John Chain, son of W. A. Chain, general manager Security Flour Mills Co., Abilene, Kansas, has been inducted into the army.

IN K. C. OFFICE

Charles L. Johnson, Cereal By-Products Co., is in the Kansas City office working with F. C. Greutker, Jr., the manager, who expects soon to be in some branch of military service. Mr. Johnson's wife and child accompanied him and already are settled in a house.

AT OKLAHOMA CITY

S. L. Knox, Buffalo, N. Y., divisional sales manager in the eastern district for General Mills, Inc., was a recent visitor at the company's Oklahoma City plant.

GUEST FROM CANADA

Miss Betty Skogsberg, a student at the University of Toronto, spent the Easter holidays with her parents, the Carl W. Skogsbergs, Oklahoma City, Okla. Mr. Skogsberg is manager of the Oklahoma City plant of the Colonial Baking Co.

BACK AT WORK

Frank Kostka, Oklahoma City, Okla., treasurer Dobry Flour Mills Co., Yukon, is back at work after two months of illness from a ruptured appendix.

HOPEFUL OUTLOOK

John Pickerill, pioneer Kansas miller and grain man who in recent years has been engaged in flour selling, is ill at his home in Kansas City as the result of a blood clot in his leg. Despite his 81 years, physicians are hopeful of complete recovery from the resulting partial paralysis. His son, John K. Pickerill, president of the Clyde (Kansas) Milling & Elevator Co., has been visiting his parents in Kansas City during his father's illness.

TALK ON JAPAN

J. M. Reuben, of the faculty of St. Thomas College, was the speaker at the monthly meeting of the Minneapolis Grain Shippers Association on the evening of April 7. His topic was Japan.

AMAZING PROSPECT

A. W. Erickson, field crop reporter, was a featured speaker at the meeting of the Southwestern Social Science Association at Hotel Baker, Dallas, Texas, April 3. Mr. Erickson, mixing his philosophy and humor with the facts of crops and their reporting, told the group of the amazing prospects for a bumper crop of wheat in North America in 1942. He spoke at the geographical meeting presided over by Professor C. J. Bollinger, of the University of Oklahoma.

HOT SPRINGS HOLIDAY

A. C. Bredesen, export manager for the International Milling Co., Minneapolis, and John McDuff, of Croswell, the company's representative in eastern Michigan, are vacationing at Hot Springs, Ark.

ON BREWING COMMITTEE

August A. Busch, Jr., vice president and general manager of Anheuser-Busch, Inc., has been appointed to an 18-member brewing industry advisory committee by the War Production Board at Washington.

NORTHERN VISITS

R. B. Jennings, Greensboro, N. C., representative of International Milling Co., was at headquarters in Minneapolis last week. On his way back home, he visited his brother in Chicago and his father in Murfreesboro, Tenn.

——BREAD IS THE STAFF OF LIFE——

OPERATIVES AND CHEMISTS PLAN MEETINGS AT K-STATE

The department of milling industry at Kansas State College, Manhattan, will be host in April to two annual meetings of technical milling groups. On April 10 and 11 three chapters of the American Association of Cereal Chemists—the Kansas City, Nebraska and Pioneer sections—will hold their yearly tri-section discussions. Districts 1 and 2 of the Association of Operative Millers will convene at the college April 24 and 25 for their seventeenth annual joint meeting.

Extensive programs are planned for both gatherings. Speakers and subjects on the chemists' schedule include: K. F. Finney, Kansas State College, "Yeast Variability in Wheat Variety Test Baking"; John A. Anderson, of the college, "Some Baking Results on Wheat Grown in 1941"; C. O. Swanson and A. C. Andrews, of the college, "Gluten Protein as the Main Factor Affecting Mixing Curve Patterns"; W. R. Green, Continental Baking Co., Kansas City, Mo., "An Improved Method for Crude Fiber Determinations"; Karl Fortman and R. M. Sandstedt, Nebraska Experiment Station, "Relation of Proteolytic Activity to Characteristics of Oxidation and Reduction"; H. H. Johnson, Gooch Milling & Elevator Co., Lincoln, Neb., "Analysis of Check Sample Results," and E. F. Tibbling and George Schiller, Washburn Crosby Company, Kansas City, Mo., "An Improved Method for B_1 Determinations."

Open discussions are planned on vitamins and on laboratory "gadgets" and shout cuts. The first session will be held on the evening of the tenth, and subsequent ones on the following morning and afternoon.

The millers will also start their meeting in the evening. Among speakers and subjects to be presented are: E. G. Bayfield, Kansas State College, "Treating Normal and High Moisture Wheat with Ethylene Gas"; Elmer Modeer, St. Joseph (Mo.) Testing Laboratories, "The Problem of Clean Corn Meal"; R. O. Pence, of the college, "Short-time Conditioning"; Warren F. Keller, of the college, "Milling Properties of Wheats"; L. P. Reitz, Kansas State College, "Why We Need New Wheat Varieties"; C. O. Swanson, Kansas State College, "Some Effects of the 1941 Wet Harvest on Wheat Quality"; J. E. Anderson, of the college, and Richard T. Cotton, U. S. Bureau of Entomology, "Some Tests with the Entoleter"; and Major V. L. Robinson, U. S. Army, "How the Army Feeds Its Men."

E. G. Bayfield, head of the college department of milling industry, was in charge of program arrangements. Charles Light, Jr., Light Grain & Milling Co., Liberal, Kansas, chairman of District 1, and C. P. May, chairman of District 2 and superintendent for the Crete (Neb.) Mills, will preside at the millers' sessions. Because of a shortage of hotel space at Manhattan, it is suggested that reservations at either the Wareham or the Gillett be made early.

OBITUARY

G. STUART ENGLE

G. Stuart Engle, 57, retired miller and baker formerly of Hazleton, Pa., died following a heart attack at his home in Atlantic City, N. J., April 1. He was born in Hazleton, the son of a miller. Upon the death of his father, Mr. Engle took over the operation of the family's flour mill, and, on the death of his mother, he became its sole owner. In 1918 he acquired the Hazleton Baking Co., which he sold in 1927. Later he owned bakeries in Shamokin, Hazleton and Norristown, Pa.

JOHN A. DONAHOE

John A. Donahoe, 52, president of Donahoe's, Inc., Pittsburgh, Pa., operator of 32 retail bakery-grocery stores in that district, died April 2 after a long illness. In 1934 he became president of his company, succeeding his father, the late P. J. Donahoe, founder of the business. Among the survivors is a brother, Jerome T. Donahoe, vice president of the company.

JOHN J. WALLACE

John J. Wallace, 63, owner and operator of the Wallace Bakery, Elkins, W. Va., died of pneumonia March 31 after a three-day illness. He had been engaged in the bakery business in Elkins since 1902, before which time he was a baker in Frostburg, Md. Among the survivors is a son, James Wallace, who was engaged in business with his father.

BENNETT S. FERGUSON

Bennett S. Ferguson, 82, retired baker of Boston, Mass., died at his home in Brookline April 1. Many years ago he and his brother, J. G. Ferguson, established a wholesale bakery in Boston, which later was sold to the General Baking Co., Mr. Ferguson continuing as manager. He was active in the formation of the first National Bakers Association in 1897.

J. G. MILLS

J. G. Mills, prominent grain and feed dealer at Cardington, Ohio, for the past 45 years, died March 31. Mr. Mills was postmaster at Cardington for 12 years and served six years as a member of the Ohio legislature.

ENRICHMENT GAINING, ILLINOIS BAKERS HEAR

50 to 60% of Commercially Baked Bread Now Enriched, States Tom Smith, ABA Secretary—Program Praised

By S. O. WERNER

BLOOMINGTON, ILL.—Enriched bread is making excellent progress even though some bakers are not yet aware of the opportunities offered, Tom Smith, secretary of the American Bakers Association, told the convention of the Associated Bakers of Illinois, which held its thirty-sixth annual meeting here April 7-8. Last fall it was estimated that 30 to 35% of commercially baked bread was enriched, Mr. Smith stated, but now it is between 50 and 60%.

It took 24 years to win national recognition of the value of oranges and seven years for tomato juice to gain a place on the table, he declared, and enriched bread, therefore, has made rapid strides. The government has given all the help that it can, he said, and every baker should make enriched bread available and not wait until his customers ask for it. The program would be more effective if practiced by all bakers without legislation, Mr. Smith believed.

Mrs. A. R. Williams, Bloomington, a national leader in PTA work, expressed the hope that bakers will make enriched bread universally available. Housewives are taking advantage of home economic courses and are being told to study labels and the nutritional qualities of food, she pointed out, and bread is an important item in the food picture. There will always be a demand for good bread, she declared.

President Walter Kurth pointed out that the war is bringing a multitude of problems to the baker and will bring about changed production methods, revisions in formulas and drastic changes in distribution. Illinois bakers, he said, have in some instances reduced mileage 20% and are still giving entirely adequate service to their customers. Conservation in every field, he said, is imperative under the war program.

Harry Hunnief, veteran baker of Robinson, was presented with a watch by his many friends in the association for his many years of service to the industry. He has attended all conventions but one of the state association.

Convention chairman was W. Berryman.

——BREAD IS THE STAFF OF LIFE——

MANAGES LOUISVILLE TRADE BOARD

LOUISVILLE, KY.—James P. Haynes has become manager of the Louisville Board of Trade, succeeding Walter Newkirk, who resigned recently to accept a similar position in private industry. Mr. Haynes was general traffic director of the Chicago Association of Commerce for 20 years. Last year he became vice president of the Commercial Barge Lines, Inc. He was one of those responsible for establishing differential freight rates between Ohio River cities and the southeastern states.

——BREAD IS THE STAFF OF LIFE——

BELLSON CO. CHANGES NAME

PHILADELPHIA, PA.—The name of the Bellson Co., flour brokerage firm here, has been changed to Samuel Bell & Sons, Inc., C. Herbert Bell, president, has announced.

MARKETS IN DETAIL

U. S. FLOUR MARKETS

THE SOUTHWEST

Kansas City: Sales by mills in the Southwest virtually nothing, with no large sales to take the slack up and a holiday to keep buyers and millers at half speed. Sales only 15% of capacity, compared with 79% the previous week and 44% a year ago.

The same conditions exist: large backlogs; lower than average running time; small fill-in orders and active response from importers. Clears fairly active, but prices about unchanged.

The long expected increase in shipping instructions still has not arrived and operations are suffering. Many mills were running on "nerve" to build up warehouse stocks and take advantage of millfeed values, but there is little incentive to continue that practice. Lower wheat values contributed to the lack of interest.

Quotations, April 4: established brands family flour $6.65@6.90, bakers short patent $5.60@5.85, 95% $5.45@5.65, straight $5.35@5.55, first clear $3.90@4.10, second clear $3.60@3.85, low grade $3.50@3.65.

Of the mills reporting, 5 reported domestic business fair, 4 quiet, 4 slow and 13 dull.

Oklahoma City: Dull trading, sales averaging 18% compared with 12 last week and 65 year ago. No exports; domestic sales divided 60 to bakers and 40 to family buyers. Operation reduced, averaging 50% compared with 60 last week and 65 year ago. Prices fairly stable, closing unchanged to 10c lower. Quotations, April 4: hard wheat short patent $6.80@7.55, soft wheat short patent $6.80@7.55, standard patent $6.50@7.15, bakers extra fancy $5.95@6.05, bakers short patent $5.80@5.90, bakers standard $5.75@5.85.

Omaha: Sales 20@45% capacity. Shipping directions on former contracts slow. Quotations, April 4: family fancy short patent $6.15@6.45, standard patent $5.60@5.85, bakers short patent $5.60@5.85, bakers standard patent $5.45@5.60.

Wichita: Prices unchanged, sales reported as from poor to fair, ranging from 20 to 50%, directions fair to good, with mills operating from 60 to 100%.

Hutchinson: Business plumbed new depths, with virtually no bookings. Trade disinterested and mills not pressing because of uncertainties affecting feed. Shipping directions coming in freely.

Salina: Demand quite satisfactory, with prices about unchanged. Shipping directions good.

Texas: Demand continues in the doldrums, sales with different mills ranging from as low as 10% to possibly 20% or 25% of capacity. In general, the larger the mill the lower the percentage. Sales still confined almost altogether to family in near-by territory. Operations, however, have picked up a little, and probably average 50 to 60% of capacity. Prices practically unchanged. Quotations, April 3: family flour 48's, extra high patent $6.90@7.40, high patent $6.40@6.90, standard bakers 98's $5.85@6.25; first clears, sacked, $4.80@4.90, delivered Texas common points or Galveston domestic rate.

THE NORTHWEST

Minneapolis: Nothing very encouraging about situation. Baking industry reported contracted for more flour than requirements called for to date; consequently, a lot of business on mill books long past due and carrying charges piling up. Buyers, however, have paper profit on most of this. Present dearth of new business is result of this overbuying. All mills more concerned about getting directions than fresh orders; directions are very difficult to get, mill running time continues light. Family trade also quiet for time being.

A little inquiry right along from Cuba and Caribbean ports, but exporters having difficulty getting vessel space. In fact, substantial backlog of old business awaits clearance from seaboard. Total new business done by spring wheat milling companies last week, around 17% of capacity, compared with 25% week earlier and 75% year ago.

Quotations, April 7: established brands of family patent $6.30@6.35, spring first patent $6.10@6.20, standard patent $6@6.10, fancy clear $5.85@5.95, first clear $5.65@5.75, second clear $3.90@4.10, whole wheat $5.80@5.90, graham standard $4.80@5.30.

Of the 15 Minneapolis mills, the following were in operation April 7: Atkinson, King Midas, Northwestern Consolidated A, Pillsbury South A, Durum A, Graham and Phoenix, Washburn Crosby A, C, F, Rye and Whole Wheat.

Interior Mills, Including Duluth: Still very quiet; new sales near vanishing point; shipping directions only fair. Feed values undergoing readjustment; good demand for mixed cars, spot shipment; production light so no pressure on market, and mills not anxious to sell deferred at present discounts.

Duluth: Quotations, April 4: first patent $6.80, second patent $6.60, first clear $6.20.

THE CENTRAL WEST

Chicago: Business again very light. Buyers not interested regardless of price inducement, and sales of routine character. Business has been exceedingly quiet for some weeks, and most factors look for an improvement in sales and also shipping directions. These have been slow for several weeks, but a change for the better is noticed. Family continues very quiet despite another drop of 10c in price. Quotations, April 4: spring top patent $5.80@6.30, standard patent $5.60@6.20, first clear $5.30@5.75, second clear $3.85@4.10, family flour $7.90@8.05; hard winter short patent $5.80@6.10, 95% patent $5.50@6, first clear $4.50@5; soft winter short patent $5.60@6.10, standard patent $5.40@5.85, first clear $4.65@4.90.

St. Louis: No change in the situation of the past few weeks. Inquiries light. Majority of buyers carrying a fair supply on hand, consequently are not interested. No round lot orders put on the books of record. Car lots rather light and that for present requirements. New business for family trade very slow. High protein clears in good demand at a slightly higher price. Other grades draggy. Jobbers advise conditions much about the same. Shipping instructions fair. Quotations, April 4: soft wheat short patent $5.90@6.80, straight $5.20@5.60, first clear $4.55@5.05; hard wheat short patent $5.15@5.85, 95% $5@5.60, first clear $4.20@4.60; spring wheat top patent $5.35@5.85, standard patent $5.20@5.60, first clear $5.05@5.50.

Toledo: Business very quiet and featureless; buyers, many of them already booked to end of crop, indifferent. Millers would like directions on past bookings while feed prices are high to help make up for flour sold too low. Prices comparatively steady. Toledo bid for No. 2 red wheat, 26c rate points to New York, April 3, $1.21¼, or 3½c under close of Chicago May future. Quotations, April 3: soft winter standard patent, $5.60@5.75; locally made springs, high gluten $6.50, bakers patent $6.25, hard winter wheat bakers patent $6.15, in 98's, f.o.b. Toledo or mill.

EASTERN STATES

Buffalo: Sales continue light; prices somewhat soft, although formal quotations remain at the levels of the previous week. Trade very hesitant and reluctant to order very far beyond immediate needs, due to the weak wheat market and also to the fact that bookings on the whole are substantial and afford a good backstop against any sudden change upward. A slight improvement noted in directions after three weeks of extreme dullness in which some pressure had to be used. Spring clears very firm and pretty well sold up. Export trade light.

Quotations, April 4: spring fancy patent $8.30@8.40 bbl, top bakery patent $6.65@6.75, standard patent $6.55@6.65, spring straights $6.45@6.55, spring first clears $5.85@5.95, soft winter short patent $6.90@7, pastry $5.75@5.85.

New York: Complete apathy pervaded the trade, resulting in a low total sales volume. Easter and Passover holidays combine to reduce interest and attendance to a minimum and from the middle of the week on barely a handful of flour men were in their offices or calling on buyers. These reported no brightness in the various phases of the business, since not only sales but collections and shipping directions as well were slow. Customers' stocks are heavy and in some quarters there has been an inclination to bring in recent cheaper flour, but others have flour on the books 75c@$1 below current levels on which they are forced to pay carrying charges through their inability to absorb it. Small retail bakers are also facing an additional hazard in the number of their men who are called into the service, bringing about a serious shortage of skilled bakeshop labor; the rising cost of ingredients in the face of unchanged selling prices gave them further cause for concern.

Practically the only business which was indicated came from the large bakers, who did purchase in a fair volume, also a scattering of family sold, but the local broker covering the jobbing and small baking trade at best sold a car or two, usually of springs, with spotty southwestern sales.

Quotations, April 4: for deferred shipment, from which deductions of 10@35c were made for immedate; spring first patent $6.65@6.85, standard patent $6.05@6.45, clears $5.90@6.15, Texas high glutens $6.15@6.40, Kansas high glutens $6.20@6.30, 95's $6.15@6.25, soft winter straights $5.85@6.20.

Boston: New business experienced the usual lull anticipated in week before Easter, but mill agents reported it slower than usual. Closing of markets on Good Friday also contributed to lack of interest. Buyers not at all concerned with making new commitments at this time, with market showing no particular tendencies. Most of those in trade covered well ahead. Only new business done came from those few who are not booked ahead and who were in immediate need of flour. Even in such cases there was no disposition to take on more than a minimum car lot order. With new business such a remote possibility, mill agents turned their attention toward getting present holdings off books, but efforts met with little success. Dullness in new business affected all types of flour, both bakery and family. Quotations were 5@10c bbl lower. Quotations, April 5: spring high glutens $6.75@6.85, short patents $6.60@6.70, standard patents $6.45@6.60, first clears $6.25@6.40, southwestern short patents $6.40@6.55, standard patents $6.30@6.40, Texas short patents $6.70@6.80, standard patents $6.50@6.60, soft winter patents $6.10@6.20, straights $5.80@6, clears $5.60@5.80.

Baltimore: Quotations steady, as demand shows little change; receipts, 22,869 bbls, a decrease of 34,062 bbls from last week, when they were unusually high. Quotations, April 4: spring first patent $6.80@7.05, standard $6.55@6.75, hard winter short patent $6.45@6.65, 95% $6.25@6.50, soft winter short patent $6.70@7.40, straight $5.30@5.65.

Philadelphia: Market weak and unsettled due to downward movement in wheat. Prices about 10c bbl lower. Trade slow and unsatisfactory. Jewish holidays and coming of Easter had a tendency to further curtail business. Jobbers and bakers confining operations to odd lots for fill-in purposes. Quotations, April 4: spring wheat short patent $6.45@6.60 bbl, standard patent $6.30@6.45, first spring clear $5.80@5.95, hard winter short patent $6.20@6.40, 95% $6.05@6.20, soft winter straights $5.50@5.85.

Pittsburgh: Demand slow; practically all consumers well supplied for considerable period ahead. Prices unchanged and inclined to weakness. Bulk of business confined to small lots of spring wheat and hard winters. Some chain consumers reported booked rather heavily at favorable prices. On whole, trade quiet due to consumers being rather low price-minded. Shipping directions slow. Family flour demand continues brisk. Sales of soft winters moderate. Clears of all grades also found ready sale. Quotations, April 4: spring short patent $6.75@7.05, standard patent $6.55@6.75, hard winter short patent $6.40@6.55, standard patent $6.20@6.35, low protein hard winter standard patent $6.15@6.25, spring clears $6.30@6.55, soft winters $5.15@5.35, bulk.

THE SOUTH

New Orleans: Very little business. Sales, particularly for future delivery, at stagnation point. Weak and lower grain market caused buyers to hold purchases to immediate and 30-day deliveries, as prices on such deliveries 15@25c lower. A few scattered sales of this type, but as mills are heavily booked, few were able to take this advantage. Southwestern hard wheat flours in best demand from broker industry and jobbers. Similar condition in midwestern softs. Northern spring wheat flours exceptionally quiet despite rate advantage of all-barge shipments. Shipping directions fair, although local jobbers disappointed at stock deliveries. Prices 10@15c bbl lower than last week. Bread and cake production lower, particularly former, although retailers anticipated good business over Easter.

Quotations, April 4: hard spring wheat family patent $6.95@7.25, first patent $6.75@6.95, standard patent $6.45@6.65, fancy clear $6@6.25, first clear $5.75@5.95, second clear $5.15@5.55; hard winter wheat family patent $6.05@6.30, bakers short patent $5.80@6.05, 95% $5.60@5.80, first clear $4.55@5.15, second clear $4.15@4.45; soft wheat short patent $6.45@7.05, straight $5.70@6.05, first clear $4.80@5.15.

Atlanta: Sales continue very dull. Blenders nibbling, but that is just about all; sales of soft wheat 95%, short patents, low protein 95%' and clears practically nil. Shipping directions from them also slow, as they are "crying" about poor movement of flour from plants. Sales of family flour "terrible." Deliveries slow to fair. New business with bakers dull. Flour movement to them quiet to only fairly good. Prices about unchanged. Quotations, April 4: spring wheat bakers short ptaent $6.75@6.95, standard patent $6.65@6.85, straight $6.55@6.75, first bakery clear $6.15@6.35; hard winter wheat family short patent $7.15@7.20, fancy patent $6.75@6.80, standard patent $6.75@6.80, special or low grade $6.25@6.30, 95% $6.75, bakery short patent $6.30@6.50, standard patent $6.20@6.40, straight $6.10@6.30, first bakery clear $5.90; hard wheat low protein 95% $5.50@5.90, bulk; first clear $4.80@5, bulk; second clear $4.55@4.75, bulk; soft wheat family short patent $7.15@7.30, fancy patent $6.75@6.90, standard patent $6.75@6.90, special or low grade $6.35@6.50; soft wheat short patent, bulk basis $5.90@6.05; soft wheat 95% $5.65@6, bulk; straight $5.55@5.90, bulk; fancy cut-off $5.05@5.15, bulk; first clear $4.75@4.95, bulk; second clear $4.50@4.70, bulk; Pacific Coast soft wheat 95% $5.80@6.10, bulk; hard wheat low protein 95% $5.95, bulk; both all-rail, f.o.b. Atlanta; self-rising family flours quoted 25c higher.

Nashville: Business limited to an occasional car for immediate shipment. Buyers still have moderate stocks, and until their outbound business picks up to a great extent or unless something happens that stimulates more interest, they indicate that they will buy on a hand-to-mouth basis. Business with the bakers continues very good. As a rule, the larger bakers still covered for several weeks and naturally only picked up a lot every now and then of special grades; other bakers on a day to day basis. Shipping directions slow to fair, mills indicating that in most cases it is very difficult to secure specifications.

Prices lower, being some 15c under. Quotations, April 4: soft winter wheat short

GRAIN FUTURES—CLOSING PRICES

Closing prices of grain futures at leading option markets, in cents per bushel:

WHEAT

	Minneapolis		Chicago		Kansas City		St. Louis		Duluth	
	May	July	May	July	May	July	May	July	May	July
April 1	118⅜	120⅜	125½	127⅛	118	119⅝	....	....	118⅝	119½
April 2	117⅞	119⅞	124¾	126⅝	117⅝	119¼	....	....	118⅛	118⅝
April 3					Holiday					
April 4	117	119	123¾	125⅝	116¼	118	....	....	117½	117⅞
April 5	117⅜	119¼	123⅞	125⅞	116⅝	118⅛	....	....	118	118¼
April 6	117	118⅞	123⅜	125⅝	115⅞	117⅞	....	....	118	118¼

	Portland		Seattle		Winnipeg		Liverpool		Buenos Aires	
	May	July	May	July	May	July	Closed		Closed	
April 1	99¾	....	100	102	79¼	80⅝	....	....	....	....
April 2	99¾	....	99½	101½	79¼	80⅝	....	....	....	....
April 3					Holiday					
April 4	*	....	98½	100	Holiday		....	....	....	....
April 5	....	....	....	....	79¼	80⅝	....	....	....	....
April 6	....	....	....	....	79¼	80⅝	....	....	....	....

	CORN						OATS			
	Minneapolis		Chicago		Kansas City		Chicago		Minneapolis	
	May	July	May	July	May	July	May	July	May	July
April 1	81⅝	84⅝	88⅝	90⅝	83⅝	85⅞	56	55½	52⅛	51⅝
April 2	81⅝	84⅝	88½	90⅝	83⅝	85⅞	55⅞	55⅝	52	51⅝
April 3					Holiday					
April 4	81⅛	83⅞	88	90⅝	83⅜	85½	55½	55	51⅜	51⅜
April 5	81⅛	83⅜	88⅛	90⅜	83⅛	85⅜	56⅛	55⅝	52⅛	52
April 6	81⅜	84⅜	88⅛	90⅜	83½	85⅞	56½	56	52⅝	52⅛

	RYE				FLAXSEED				BARLEY	
	Chicago		Minneapolis		Minneapolis		Duluth		Minneapolis	
	May	July	May	July	May	July	May	July	May	July
April 1	79⅛	82⅛	75⅛	77½	260	259⅜	260	....	58⅜	60½
April 2	78¾	81⅜	74½	76⅞	265	264⅝	265	....	59	60¾
April 3					Holiday					
April 4	77½	80⅝	73⅝	75⅝	261¼	261¼	261¼	....	59	60¾
April 5	78⅝	81¼	74⅝	76⅜	263¼	264¼	263¾	....	59½	61¼
April 6	78	80⅞	74	76⅜	260½	261½	260½	....	59½	61

UNITED STATES VISIBLE GRAIN SUPPLY

Visible supply of grain in the United States, as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted), of date April 4, and corresponding date of a year ago:

	Wheat		Corn		Oats		Rye		Barley	
	1942	1941	1942	1941	1942	1941	1942	1941	1942	1941
Baltimore	7,359	189	674	718	14	16	115	87	5	1
Buffalo	7,198	3,678	8,851	611	471	312	3,335	165	266	169
Afloat	407	...	...	...	...	...	...	...	...	...
Chicago	11,861	9,556	10,783	15,168	1,709	856	4,819	1,492	334	488
Afloat	...	..	187	211	..	..	134	..	...	...
Detroit	190	113	2	2	4	4	2	2	300	180
Duluth	34,633	19,476	5,560	3,227	347	256	1,533	661	992	451
Fort Worth	10,060	7,499	603	695	84	102	13	1	60	14
Galveston	4,688	462	..	43	..	..	..	..	..	..
Hutchinson	9,118	6,775	..	695	..	..	..	..	..	..
Indianapolis	1,406	1,440	2,277	1,205	251	330	143	87	..	..
Kansas City	33,727	26,142	5,953	7,852	231	66	418	293	275	25
Milwaukee	2,712	464	1,157	3,789	165	36	1,115	230	1,004	1,081
Minneapolis	37,335	24,456	4,438	10,514	1,069	1,096	5,042	1,769	3,677	3,147
New Orleans	1,772	58	252	253	23	112	..	1	..	..
New York	519	16	269	15	27	6	40	39	..	2
Omaha	13,187	6,612	6,869	13,539	373	25	240	2	325	5
Peoria	889	711	467	640	..	..	..	..	156	152
Philadelphia	2,010	55	526	160	10	14	10	1	1	2
St. Louis	5,214	5,560	3,992	1,220	139	101	489	92	24	8
Sioux City	1,587	689	1,508	1,572	90	26	..	1	19	10
St. Joseph	5,743	3,688	809	2,673	88	107	7	8	14	8
Wichita	6,760	3,801	2	..	1	..	..	..	28	..
Lakes	..	..	963	..	..	..	..	..	..	..
Totals	198,375	121,440	56,142	64,086	5,096	3,465	17,455	4,932	7,480	5,743

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per bbl of 196 lbs, packed in 98-lb cottons or 140-lb jutes. All quotations on basis of carload lots, prompt delivery.

	Chicago	‡Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cincinnati	†Nashville
Spring first patent	$5.80@ 6.30	$6.10@ 6.20	$....@....	$5.35@ 5.85	$6.65@ 6.75	$6.65@ 6.85	$6.80@ 7.05	$6.45@ 6.60	$6.60@ 6.70	$....@....	$6.55@ 7.15
Spring standard patent	5.60@ 6.20	6.00@ 6.10	....@....	5.20@ 5.60	6 55@ 6.65	6.05@ 6.45	6.55@ 6.75	6.30@ 6.45	6.45@ 6.60	....@....	6.25@ 6.55
Spring first clear	5.30@ 5.75	5.65@ 5.75	....@....	5.05@ 5.50	5.85@ 5.95	5.90@ 6.15	....@....	5.80@ 5.95	6.25@ 6.40	....@....	....@....
Hard winter short patent	5.80@ 6.10	....@....	5.60@ 5.85	5.15@ 5.85	....@....	6.15@ 6.40	6.45@ 6.65	6.20@ 6.40	6.40@ 6.55	....@....	6.10@ 6.55
Hard winter 95% patent	5.50@ 6.00	....@....	5.45@ 5.65	5.00@ 5.50	....@....	6.15@ 6.25	6.25@ 6.50	6.05@ 6.20	6.30@ 6.40	....@....	5.80@ 6.10
Hard winter first clear	4.50@ 5.00	....@....	3.90@ 4.10	4.20@ 4.60	....@....	....@....	....@....	....@....	....@....	....@....	....@....
Soft winter short patent	5.60@ 6.10	....@....	....@....	5.90@ 6.80	6.90@ 7.00	....@....	6.70@ 7.40	....@....	6.10@ 6.20	....@....	6.45@ 7.15
Soft winter straight	5.40@ 5.85	....@....	....@....	5.20@ 5.60	....@....	5.85@ 6.20	*5.30@ 5.65	*5.50@ 5.85	5.80@ 6.00	....@....	6.15@ 6.45
Soft winter first clear	4.65@ 4.90	....@....	....@....	4.55@ 5.05	....@....	....@....	....@....	....@....	5.60@ 5.80	....@....	5.55@ 5.85
Rye flour, white	4.40@ 4.60	4.25@ 4.65	....@....	....@ 5.10	....@ 5.45	4.75@ 5.10	....@ 5.20	4.85@ 5.00	....@....	....@....	....@....
Rye flour, dark	3.65@ 3.95	3.45@ 3.95	....@....	....@ 4.45	....@ 4.75	....@....	....@ 4.50	....@....	....@....	....@....	....@....

	Seattle (98's)	S. Francisco	Standard patent—	Seattle	San Francisco		Toronto	**Winnipeg		Toronto	**Winnipeg
Family patent	$7.10@7.35	$8.60@8.80	Dakota	$7.00@ 7.20	$6.40@ 6.60	Spring top patent¶	$....@5.25	$....@5.30	Spring exports‡	28s 9d	....
Soft winter straight	5.75@5.90	....@....	Montana	6.60@ 6.75	6.00@ 6.20	Spring second pat.¶	....@4.50	....@4.80	Ont. 90% patents‡	$5.40@5.50	....
Pastry	5.65@5.80	5.20@5.40				Spring first clear¶	....@3.40	....@....			

*Includes near-by straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In cottons, Fort William basis. ¶98-lb jutes. ‡Second-hand jutes. §140-lb jutes. ‖Tuesday prices.

patent $6.45@7.15, standard patent $6.15@6.45, fancy patent $5.85@6.15, clears $5.55@5.85, hard winter wheat short patent $6.10@6.55, standard patent $5.80@6.10, spring wheat short patent $6.55@7.15, standard patent $6.25@6.55.

PACIFIC COAST

Seattle: It is now established that the government accepted a total of 480,000 bbls from local mills for shipment between April 6 and June 27. This, with what local domestic business that will develop means that they will be able to operate at near capacity levels for the next 90 days. Domestic business remains very slow, jobbers and wholesalers still overstocked and flour is not moving in retail channels. Bakery trade somewhat better, but they too have been well booked ahead. South American business does not amount to any volume even with the $1.25 government subsidy. Quotations, f.o.b. Seattle or Tacoma, April 4: family patent $7.10@7.35, bluestem $6.85@7, straight soft white $5.75@5.90, pastry $5.65@5.80, Dakota $7@7.20, Montana $6.60@6.75.

Portland: New bookings light, but most mills have satisfactory bookings ahead and back-log of orders rather large. However, shipping instructions coming in slower than usual for this time of year. Domestic trade lighter, with weaker wheat markets and buyers staying out of market. Some southeastern bookings, but volume limited. Bookings to South and Central America better, more interest shown on part of buyers there. However, this coast not getting much of this South American trade. No new government business in sight, but mills busy on previous orders.

Quotations, April 4: export straights $4.50@4.60, f.o.b. 98's; soft wheat straights $5.65@5.75, f.o.b. Nashville; soft wheat straights $5@5.15, f.o.s. Kansas common; f.o.b. mill, all Montana $6.15@6.35; bluestem bakers, unbleached $6.15@6.35, bluestem bakers $5.90@6.35, Big Bend bluestem $5.90@6.10, cake $7.60@7.80, pastry $5.15@5.35, pie $5.15@5.35, fancy hard wheat clears $5.95@6.15; whole wheat, 100% $5.75@5.95, graham $5.05@5.25, cracked wheat $5.25@5.45.

San Francisco: Business dull, with prices steady and interest lacking. Deliveries continue slow, but most north coast mills are not pressing for instructions due to government business. Quotations, April 4: eastern family patents $8.80@9, California family patents $8.60@8.80, Oregon-Washington bluestem blends $6@6.20, northern hard wheat patents $6@6.20, pastry $5.20@5.40, Dakota standard patents $6.40@6.60, Idaho hard wheat patents $6.10@6.30, Montana spring wheat patents $6.30@6.50, Montana standard patents $6@6.20, California bluestem patents $5.60@5.80, California pastry $5.10@5.30.

CANADIAN MARKETS

Toronto-Montreal: Market for spring wheat flour oversupplied. Apparently in order to get millfeed, which is so much wanted, production of flour has been greater than market can absorb. Consequently low prices are being accepted by many sellers which has a demoralizing effect on the general structure of values. Lists unchanged. Quotations, April 4: top patents $5.25 bbl, seconds $4.50, bakers $4.30, in 98's, jute, car lots, net cash, track, Toronto-Montreal territory.

Export trade in spring wheat flour good. Mills running full time on orders from British Ministry of Food, West Indies and Newfoundland. U. K. business mostly all for prompt shipment. Looks like an active season for Canadian flour mills, as there is believed to be a considerable volume of such orders in sight. Price advanced 3d. Quotations, April 4: vitaminized flour for shipment to United Kingdom, 28s 9d per 280 lbs, jute, f.o.b. April, Canadian seaboard ports; 29s United States ports.

Moderate demand for pure Ontario winter wheat flour and fair prices being offered by buyers. Mills find it hard to get wheat. Export trade dead as prices are too high as compared with springs, and there is also difficulty of securing shipping space. Some mills getting $5.40@5.50 bbl for pure Ontario winters, in second-hand jutes, Montreal, without difficulty, while others are accepting 10@15c bbl under, possibly on account of their ceiling being at that level.

Winnipeg: Export sales equivalent to 1,250,000 bus of wheat, all to an allied nation, and reflected in the Winnipeg wheat futures market. Domestic trade small and unimportant. Recent increase in sales to over-sea destinations resulting in heavier mill run. Supplies moving freely. Quotations, April 4: top patent springs for delivery between Fort William and British Columbia boundary, $5.30, cottons; seconds $4.80; second patents to bakers, $4.60.

Vancouver: Interest in flour has shifted almost entirely from export to domestic with the advent of the new government-sponsored vitamin D flour. The export picture continues to offer extremely limited possibilities until at least some improvement is noted in the shipping situation, which, at present, is almost nonexistent due to war activities in all parts of the Pacific.

No further word has been received in local export circles regarding additional Russian purchases in the Canadian market, but in view of the fact that numerous Soviet freighters are reported available in Pacific waters, there is still a good chance that further orders will be given to Canadian mills, always providing, however, that hostilities do not break out between Russia and Japan around Vladivostok.

Domestic flour sales are slower as far as first patents are concerned, as the public is trying out the new vitamin grind. The same condition applies to bakers patents, but so far none of the new bread has appeared. Quotations on a cash basis in cotton 98's are unchanged at $5.40 for first patents and $5 for bakers patents and vitamin grinds. Ontario pastry is in only fair supply at $7.60.

MILLFEED MARKETS

Quotations Tuesday, April 7

Minneapolis: Main feature scarcity of all grades for immediate shipment; mixed-car inquiry heavy and absorbing big per cent of current production, leaving very little for sale or to apply against old contracts. It is reported there are still some unfilled contracts for February shipment bran. Mills holding prices nominally at $36 for bran, $35.50 for std. midds., $36 for flour midds. and $36.50 for red dog. Mixers having hard time getting urgently needed supplies and represented willing to pay $37 for bran, without sellers. Bids for all April shipment now average around spot levels. With supplies so limited and no assurance of heavier run in prospect, no disposition shown by millers to consider bids for future shipment at current discounts.

Kansas City: Bran holding steady, but buying pressure causing buyers to go out and get shorts at slightly higher values; bran $35.75@36, gray shorts $37.50@37.75.

Oklahoma City: Good demand on all classes; prices unchanged; bran $1.90@1.95 per bag of 100 lbs, mill run $1.92½@1.97½, shorts $1.95@2.

Omaha: Sales light; demand good; std. bran $35.50@35.75, pure bran $36@36.50, brown shorts $36, gray shorts $36.75@37.75, flour midds. $36.75@37.75, red dog $38.50@39.

Wichita: Good; supply ample; trend slightly lower; bran $36@36.25, shorts $37@37.50.

Hutchinson: Strong; trend fairly steady; supply inadequate; bran $36@36.50, mill run $37, gray shorts $37.50@38 (Kansas City basis).

Salina: Good; trend lower on bran and about steady on shorts; supply of bran about equal to trade requirements, but shorts remain extremely scarce; std. bran $35.75@36.25, gray shorts $37@37.50.

Fort Worth: Good; trend firm to higher; supply inadequate; offerings for immediate shipment scarce, market tight; wheat bran $39@40, gray shorts $42.40@43.40, white shorts $45@46, car lots, del. Texas common points or Galveston domestic rate.

Chicago: Fairly active; trend firm; offerings scarce; spring and hard winter bran $38.75@39 std. midds. $38@38.25, flour midds. $38@38.75, red dog $38@38.75.

St. Louis: Bran $38@38.25, pure bran $38.25@38.50, gray shorts $38.75@39, brown shorts $38.25@38.50, red dog $39.

Toledo: Softer; some decline from earlier highest levels, but selling readily; some mills sold up; soft winter wheat bran $38.50@40, mixed feed $38.50, flour midds. $37, std. $36.

Buffalo: Considerably slower, as buyers are inclined to liquidate stocks and hold off for lower prices; prices now evidently reflect the lower values that usually prevail during spring and summer months; trend somewhat easier due to seasonal influences, but firmer than usual for this season of the year; supplies continue light with output below normal demand; bran $39.50, std. midds. $39, flour midds. $38.50, second clears $40.50, red dog $37.50, heavy mixed feeds $39.

New York: Good; trend lower; supply light; bran $43, std. midds. $42, flour midds. $41.25, red dog $41.25.

Boston: Demand continues good, especially for bran, but confined to near-by shipment. Although deferred shipment offered well below spot supplies trade could not be interested. Offerings from Buffalo and West were adequate but not plentiful, latter being 50c below Buffalo on bran, but 50c higher on middlings. Canadian offerings scarce. Domestic qoutations firm except for red dog; std. bran $46.50@47.50, std. midds. $43.50@44, flour midds. $44.50@45, red dog $42.

Baltimore: Fair; trend easy; supply light; std. bran $39.75, pure soft winter bran $40, std. midds. $38.75, flour midds. $38, red dog $38.

Philadelphia: Limited; trend easy; supply light; bran, std. $44@44.50, pure spring $44.50@45, hard winter $44.50@45, soft winter nominal; midds., std. $42@42.50, flour $40.50@41, red dog $40.50@41.

Pittsburgh: Moderate; trend steady; supply ample; spring bran $43.75, red dog $43.50.

Atlanta: Quiet and for immediate only; trend continues strong; supply ample; bran $44.75@47, gray shorts $45@48, std. midds. $45.15@45.75, rye midds. $38.75@39, red dog $46.25@49.

Nashville: Demand exceptionally light due probably to higher prices, as farmers are feeding substitutes whenever possible; bran $42@42.25, gray shorts $42.75@43 per ton, f.o.b. Nashville.

Seattle: Slower; trend easier; supply fair; $30.50@31.50.

Portland: Std. mill run $31, bran $32, shorts $33, midds. $36.

Ogden: Trade is quiet, although baby chick season is stimulating feed business in the territory; mills continue to operate at capacity five days per week; supply and demand are about equal; quotations down $1. To Utah and Idaho dealers: red bran and mill run $31, blended $31, white $31.50, midds. $37.50, carload lots, f.o.b. Ogden; Denver prices: red bran and mill run $36, blended $36, white $36.50, midds. $42.50 per ton; California prices: red bran and mill run $38, blended $38, white $38.50, midds. $44.50, car lots, f.o.b. Los Angeles. Millfeed prices for San Francisco shipments quoted 50c under Los Angeles.

San Francisco: Coast market very weak; demand slow; buyers anticipate heavier offerings and are cleaning up stocks; Kansas bran, $45@45.50; Utah-Idaho: red mill run $36.50@37, blended $36.50@37, white $37@37.50; Oregon-Washington: red mill run $34.50@35, std. $34.50@35, white $35@35.50, white bran $38.50@39, midds. $39.50@40.

CENSUS REPORT ON FLOUR AND FEED OUTPUT

The Department of Commerce announces statistics on wheat ground and wheat milling products by months. The figures for January are revised to include reports received since the preliminary bulletin for that month was issued. These returns include only mills which are now manufacturing at the rate of 5,000 or more barrels of flour annually.

For February, 1942, 965 companies report 1,092 mills, of which 78, with daily capacity of 26,518 bbls, were idle. Of the 1,092 mills which reported detailed production data at the biennial census of manufactures, 1939, 1,057 accounted for 105,220,132 bbls of the total wheat flour, 111,368,727 bbls, reported for that year.

The wheat ground averaged 273.3 lbs per bbl of flour in February, 274.5 in January, 1942, 274.1 in December, 274.3 in November, 273.9 in October, 273.3 in September, 273.2 in August, 273.3 in July, 272.4 in June, 272.5 in May, 272.6 in April, and 272.4 in March, 1941.

The offal reported amounted to 78.3 lbs per bbl of flour in February, 79.3 in January, 1942, 78.9 in December, 79.1 in November, 79.1 in October, 78.6 in September, 78.5 in August, 78.8 in July, 78.2 in June, 78.6 in May, 78.5 in April, and 78.3 in March, 1941.

	Mills reporting	Wheat ground, bus	Production— Wheat flour, bbls	Production— Wheat offal, lbs	Daily wheat flour capacity, bbls	Per ct. of capacity operated
1942—						
February	1,092	38,621,257	8,478,922	663,743,001	577,775	63.8
January	1,092	43,611,451	9,532,322	756,198,580	577,081	63.5
1941—						
December	1,095	42,403,363	9,283,069	732,746,464	578,166	61.8
November	1,090	37,559,901	8,215,894	650,109,856	574,261	59.6
October	1,090	44,251,019	9,693,028	766,312,956	576,931	62.2
September	1,093	43,247,401	9,495,471	745,899,210	571,116	65.8
August	1,097	39,123,440	8,592,209	674,350,556	578,211	57.2
July	1,099	40,625,412	8,918,328	703,200,817	578,322	59.3
June	1,104	38,818,781	8,551,625	669,140,516	580,457	58.9
May	1,106	39,044,639	8,595,895	675,410,877	582,373	56.8
April	1,100	40,899,012	9,001,951	706,943,556	581,799	59.5
March	1,100	39,791,630	8,763,643	686,550,677	581,943	57.9
February	1,097	36,574,699	8,063,113	630,123,999	581,818	60.3
January	1,085	39,999,943	8,817,984	690,728,367	584,488	58.0

COMPARATIVE STATEMENT FOR 757 IDENTICAL MILLS*

	Wheat ground, bus	Production— Wheat flour, bbls	Production— Wheat offal, lbs	Daily wheat flour capacity, bbls	Lbs of wheat per bbl of flour	Lbs of offal pacity per bbl of flour	Per ct. of capacity operated
February—1942	37,424,610	8,227,784	641,238,444	535,829	272.9	77.9	66.8
1941	35,065,511	7,741,127	602,533,870	530,759	271.8	77.8	63.4
1940	35,092,473	7,744,755	606,720,268	530,578	271.9	78.3	60.8
1939	33,987,401	7,445,179	599,126,561	522,228	273.9	80.5	62.0
1938	33,485,409	7,266,477	604,575,605	530,633	276.5	83.2	59.5

*These mills produced 101,998,935 bbls of the total wheat flour production (111,368,727 bbls) as shown by the returns of the biennial census of manufactures for 1939, and accounted for 97% of the wheat flour production reported for February, 1942 (8,478,922 bbls). During February, 1942, 33 mills, with capacity of 14,384 bbls, were idle.

SUMMARY OF MILLFEED QUOTATIONS

Week-end millfeed quotations, summarized from the market reviews, are based on carload lots, prompt delivery, per ton, packed in 100-lb sacks, f.o.b. at indicated points:

	Chicago	‡Minneapolis	Kansas City	St. Louis	Buffalo
Spring bran	$38.75@39.00	$36.00@....	$....@....	$....@....	$....@39.50
Hard winter bran	38.75@39.00	....@....	35.75@36.00	38.00@38.25	....@....
Standard middlings*	38.00@38.25	35.50@....	....@....	38.25@38.50	....@39.00
Flour middlings†	38.00@38.75	36.00@....	37.50@37.75	38.75@39.00	....@38.50
Red dog	38.00@38.75	36.50@....	....@....	....@39.00	....@37.50

	Baltimore	Philadelphia	Boston	Cincinnati	Nashville
Spring bran	$....@39.75	$44.50@45.00	$46.50@47.50	$....@....	$....@....
Hard winter bran	....@....	44.50@45.00	....@....	....@....	....@....
Soft winter bran	....@40.00	....@....	....@....	....@....	42.00@42.25
Standard middlings*	....@38.75	42.00@42.50	43.50@44.00	....@....	....@....
Flour middlings†	....@38.00	40.50@41.00	44.50@45.00	....@....	42.75@43.00
Red dog	....@38.00	40.50@41.00	....@42.00	....@....	....@....

	Spring bran	Shorts	Middlings
Toronto	$....@29.00	$....@30.00	$....@33.00
¶Winnipeg	....@28.00	....@29.00	....@....

*Brown shorts. †Gray shorts. ‡Fort William basis. ‡Tuesday prices.

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Pancake Flour—Cake Flour—Farina—Whole Wheat Products—Prepared Biscuit Flour
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shorts $38.50@39; Montana: bran and mill run, $39.50@40; California: blended mill run $35.50@36, white $36@36.50.

Los Angeles: Fair; trend steady; supply fair; Kansas bran $45, local midds. $42, local mill run $36.

Toronto-Montreal: Trend steady; demand heavy; mill production inadequate for domestic buyers; poultry feed manufacturers not getting enough for their mixing requirements; it is rumored that freight subsidy so far as this applies to millfeed may be dropped. Withdrawal of subsidy would have no effect on ceiling prices, so that mills would get no more for their millfeed; very little going for export on account of restrictions, although prices in U. S. markets about $12 over Canadian. To arrive at domestic value to buyers deduct freight subsidy of $4.50 ton from following prices: bran $29, shorts $30, midds. $33 ton, net cash, bags included, mixed or straight cars, track, Montreal freights.

Winnipeg: Eastern and southern demand good, but western domestic inquiry very slow; most stocks moving East; no accumulation of supplies indicated; bran $28, shorts $29, Man. and Sask; Alta. bran $25.50, shorts $26.50; small lots ex-country elevators and warehouses $3 extra.

Vancouver: Trend steady; general situation appears unchanged, with supplies coming in fairly well from prairie mills and domestic demand continuing exceptionally good; stocks about sufficient to meet current needs; prices steady; no quotation for feed flour, which has just about gone off the list owing to its high price as compared with feed grains; bran $29.80, shorts $30.80, midds. $33.80.

RYE PRODUCTS

Minneapolis and Interior Minnesota: Only a few scattering small lots reported sold; trade has been ordering out freely against old contracts, but, although business on mill books steadily decreasing, no tendency is shown toward anticipating future needs; prices reasonably steady, but wide range in asking prices; pure white rye flour $4.25 @4.65 bbl, in 98-lb cottons, f.o.b. Minneapolis, pure medium $4.05@4.45, pure dark $3.45@3.95.

Baltimore: Rye flour steady; No. 2 rye 5c bu higher; demand about steady; rye flour, dark to white, $4.50@5.20 bbl; No. 2 rye, 90@95c bu; rye stock in local elevators decreased 2,223 bus during the week to a total of 119,292 bus.

St. Louis: Prices advanced 5@10c; sales and shipping directions fair; pure white flour $5.10 bbl, medium $4.90, dark $4.45, rye meal $4.70.

Buffalo: Demand light; trend steady; supply ample; dark $4.75, medium $5.25, white $5.45.

New York: Sales light, with no interest or feature; pure white patents $4.75@5.10.

Portland: Pure dark rye $5.70@5.80, medium dark rye $5.75@5.85, Wisconsin pure straight $6.35@6.50, Wisconsin white patent $6.60@6.70.

Pittsburgh: Demand fair; trend unchanged; supply ample; pure white rye flour $5.10@5.40, medium $4.80@5.10, dark $4.15 @4.40.

Chicago: Market dull and featureless, with only small and scattered sales; directions only fair; white patent $4.40@4.60, medium $4.20@4.40, dark $3.85@3.95.

Philadelphia: Market dull and easier last week, with offerings more liberal; white patent, $4.85@5.

OATMEAL MARKETS

Toronto-Montreal: Rolled oats and oatmeal in light demand. Warmer weather reduced consumption. No export demand. Price unchanged. Quotations, April 4: rolled oats $3.25 per 80-lb bag, delivered, mixed cars, Toronto-Montreal.

Winnipeg: Domestic demand for rolled oats and oatmeal falling off and sales lessening. No indication of any export trade. Supplies generally light. Quotations, April 4: rolled oats, in 80-lb sacks, $3.25 in the three prairie provinces; oatmeal, in 98-lb sacks, 20% over rolled oats.

Minneapolis: Rolled oats were quoted on April 6 at $3.55 per 90 lbs, bulk; 20-oz packages $2.20 case; 48-oz packages, $2.35.

Millfeed Futures Open Interest

Following table shows open contracts at Kansas City and St. Louis on April 6, in tons. This is the short side of contracts only, there being an equal number of tons open on the long side.

	Kansas City		St. Louis	*St. Louis	
	Bran	Shorts	Shorts	Bran	Midds.
April	3,500	2,400	600	2,850	300
May	5,175	4,100	400	6,800	750
June	3,800	1,900	..	5,750	600
July	100	700	..	2,200	400
August	1,000	400	..	3,000	..
September	..	..	..	1,000	..
Totals	13,575	9,500	1,000	21,600	2,050

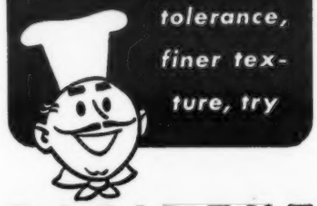
*Delivered in Chicago.

Flaxseed Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at principal primary points for the week ending April 4, in thousand bushels, with comparisons:

	Receipts		Shipments		Stocks	
	1942	1941	1942	1941	1942	1941
Minneapolis	129	167	28	20	2,610	3,225
Duluth	..	48	3	1	1,026	631

Hard Western wheat makes the difference! For more flavor, more tolerance, finer texture, try



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Flours
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SECURITY FLOUR MILLS CO.
Operating SECURITY and MID-WEST Mills
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5,000 Bbls Capacity
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"Heart of America" FLOUR
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QUALITY MILLED FLOURS
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Millers Since 1776
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ACME
BAKERS SHORT PATENT
FLOUR
Also "GOLD DRIFT"
These Brands Meet Every Shop Need
The ACME FLOUR MILLS CO.
Oklahoma City, Okla.

SEMOLINA MARKETS

Minneapolis: New business difficult to book, prices very unsatisfactory. Shipping directions slowing up. Macaroni manufacturers had fairly heavy run during lenten season, but demand beginning to fall off. They still have lot of unfilled orders on mill books, and so far show no interest in future needs; fancy No. 1 semolina $6.25@6.35 bbl, bulk, f.o.b. Minneapolis, standard $5.95@6.05, granular $5.85@5.95.

In the week ended April 4, nine Minneapolis and interior mills made 66,292 bbls durum products, against 77,362 in the previous week.

St. Louis: Prices declined 5c; sales and shipping directions fair; first grade semolina $7.50, granular $7.05, No. 3 $6.85, durum fancy patent $7.50.

Buffalo: Demand increased somewhat, but not a great deal; prices firmed up, although there was no appreciable sales volume; most buyers still on side lines working against contracts; trend steady; directions have slowed up, increasing supplies, as many manufacturers report slackening of demand in grocery channels; No. 1 $7.50, durum fancy patent $7.50, macaroni flour $6.50, first clears $5.50, second clears $4.55, durum granular $7.10.

Pittsburgh: Demand limited; trend unchanged; supply ample; No. 1, $6.80@7.

Chicago: Practically no change in conditions, with demand still very quiet; No. 1 semolina, $6.40@6.65.

Philadelphia: Market quiet and easy; offerings moderate but ample; No. 1 durum semolina, $6.60, bulk.

Flour and Grain Receipts and Shipments

Receipts and shipments of flour and grain at the principal distributing centers for the week ending April 4, as compiled by the Daily Trade Bulletin†, flour given in barrels, grain in bushels (000's omitted throughout):

RECEIPTS

	Flour	Wheat	Corn	Oats	Rye
Chicago	177	92	1,329	266	30
Duluth	..	358	15	2	11
Indianapolis	..	20	391	100	8
Kansas City	..	525	462	94	..
Milwaukee	15	..	104	2	4
Minneapolis	..	568	93	149	29
Omaha	..	135	544	60	..
Peoria	35	16	813	30	23
Sioux City	..	7	59	10	..
St. Joseph	..	75	209	60	..
St. Louis	90	140	383	78	11
Wichita	..	114	..	..	..
Totals	317	2,050	4,402	851	116
Seaboard—					
New York	104	633	..	..	..
Philadelphia	31	234	..	..	..
Totals	135	*867	..	..	..
Grand totals	452	2,917	4,402	851	116
Last week	566	4,160	4,871	911	260
Last year	680	5,315	4,808	1,317	202

*782,000 bus bonded.

SHIPMENTS

Primary points—					
Chicago	105	295	2,223	258	69
Duluth	..	85	9	12	2
Indianapolis	..	1	188	74	4
Kansas City	97	345	378	44	..
Milwaukee	3	..	205	14	45
Minneapolis	97	726	153	217	89
Omaha	..	73	793	84	..
Peoria	34	89	477	26	5
Sioux City	..	5	83	6	..
St. Joseph	..	65	85	74	..
St. Louis	94	127	224	52	10
Wichita	..	188	..	..	..
Totals	430	1,999	4,818	861	224
Seaboard—					
New York	..	542	..	..	..
Philadelphia	..	12	..	1	..
Totals	..	*554	..	1	..
Grand totals	430	2,553	4,818	862	224
Last week	483	3,785	3,555	1,142	216
Last year	525	3,109	2,536	995	157

*542,000 bus bonded. ‡Some allowance should be made for duplication.

United States Grain Stocks

Commercial stocks of grain in store and afloat at the principal markets of the United States at the close of the week ending April 4, 1942, and April 5, 1941, as reported to the United States Bureau of Agricultural Economics, in bushels (000's omitted):

	American		Canadian in bond	
	April 4 1942	April 5 1941	April 4 1942	April 5 1941
Wheat	237,784	140,966	13,494	38,349
Corn	60,981	71,634	...	...
Oats	6,027	4,169	4	199
Rye	17,416	5,203	1,438	3,260
Barley	8,295	6,484	...	260
Flaxseed	3,849	3,856	...	...

Stocks of United States grain in store in Canadian markets April 4 (figures for corresponding date a year ago given in parentheses): wheat, 215,000 (228,000) bus; corn, 2,322,000 (46,000); oats, 2,000 (none); rye, 24,000 (24,000); barley, none (none).

Millfeed Receipts and Shipments

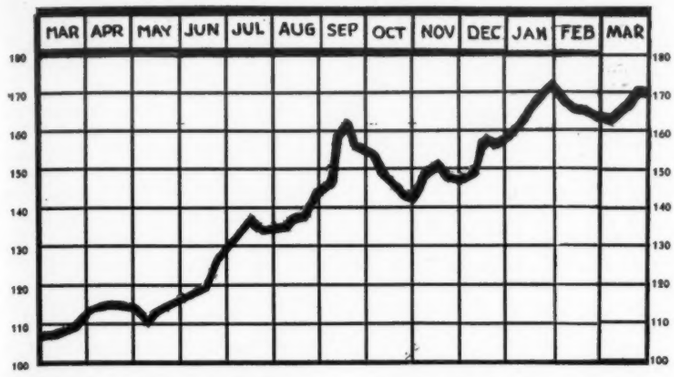
Receipts and shipments of millfeed at the principal distributing centers for the week ending April 4, in tons, with comparisons:

	Receipts		Shipments	
	1942	1941	1942	1941
Minneapolis	...	...	7,700	7,535
Kansas City	1,750	2,050	5,225	4,925
Philadelphia	100	250	...	...
Milwaukee	..	...	2,080	3,320

FEED PRICE MOVEMENT THE PAST YEAR

1935-36=100

A Weighted Average of Principal Feedstuffs as Determined by the Bureau of Agricultural Economics



WESTERN CANADIAN WHEAT GOES EASTWARD BY RAIL

TORONTO, ONT.—In its review of the wheat situation in Canada for March the Dominion Bureau of Statistics states that box cars filled with western Canadian wheat continue to roll eastward from terminal elevators at the head of the lakes, largely in connection with the freight assistance policy of the federal government. A fair amount is going to mills but there is wide distribution of car lots in Ontario and Quebec where the grain is being fed to livestock and poultry. From the beginning of the crop year in August up to end of February 5,627,240 bus of wheat have been railed eastward, compared with 658,351 in the corresponding period of previous year.

The Canadian railways recently presented a case for an increase in rail rates to conform to increases sanctioned in the United States, but the Board of Transport Commissioners has not yet reached a decision. The current rail rate from Georgian Bay ports to the Canadian Atlantic seaboard, including elevation at bay port elevators, is approximately 7¼c bu, and from bay ports to Montreal and other St. Lawrence River ports, it is about 5½c bu. Between Aug. 1, 1941, and March 19, 1942, more than 36,000,000 bus of wheat were shipped by rail from bay ports to the Canadian Atlantic seaboard ports.

——BREAD IS THE STAFF OF LIFE——

Bonded Grain in the United States

Bonded grain in the United States April 4, in bushels (000's omitted):

	Wheat	Corn	Oats	Rye	B'l'y
Baltimore	1,253	..	..	..	..
Boston	1,957	..	..	..	..
Buffalo	3,313	..	..	320	..
New York	2,212	..	..	..	..
Philadelphia	807	..	..	..	..
Lakes	142	..	..	..	..
Totals	10,113	..	..	320	..
March 28, 1942	10,071	..	..	346	..
April 5, 1941	30,307	..	64	2,308	289

Rye Flour Output

Following is the rye flour output reported to The Northwestern Miller by mills at Chicago, Minneapolis and outside points in the Northwest, in barrels, with comparative figures for the previous week:

	Week ending March 28	Week ending April 4
Five mills	15,004	*13,321

*Four mills.

Western Canada Visible Grain Supply

Visible supply of grain in the western inspection division April 1, 1942, and receipts and shipments during the past week, in bushels (000's omitted):

Fort William and Port Arthur—	Wheat	Durum	Oats	Barley
Semi-public terminals	130,844	680	1,593	3,175
Private terminals	..	..	38	2
Winter storage—Afloat	1,726	..	..	..
Totals	132,570	680	1,631	3,177
Vancouver-New Westminster	18,028	..	94	49
Int. public and semi-public elevators	17,643	..	53	78
Churchill	2,617	..	..	..
Victoria	1,025	..	..	..
Prince Rupert	1,206	..	..	..
Totals	173,089	680	1,778	3,305
Year ago	128,167	1,421	1,438	718
Receipts during week—				
Ft. Wm.-Pt. Ar.	1,247	8	75	18
Pacific seaboard	34	..	2	2
Int. public and semi-public elevators	..	..	6	..
Totals	1,282	8	83	74
Shipments during week—				
Ft. Wm.-Pt. Arthur—Lake	558	..	..	..
Rail	109	6	283	150
Int. public and semi-public elevators	..	..	..	2
Pacific seaboard	58	..	4	2
Totals	726	6	287	153

TOTAL RECEIPTS
Aug. 1, 1941-April 1, 1942

Ft. Wm.-Pt. Ar.	158,043	1,586	13,918	16,172
Pacific seaboard	1,928	..	246	103
Int. public and semi-public elevators	422	..	169	130

TOTAL SHIPMENTS
Aug. 1, 1941-April 1, 1942

Ft. Wm.-Pt. Ar.	107,294	1,559	15,110	14,103
Pacific seaboard	1,398	..	171	74
Int. public and semi-public elevators	2,732	1	111	47

REPRINTS

For the benefit of those who may desire reprints of editorial or other articles appearing in THE NORTHWESTERN MILLER, the publishers will supply such reprints at actual cost, approximately as follows for articles occupying one page or less of space, ordered within six weeks of publication—for later orders a charge for resetting type will be added: $2.50 for the first 100; 50c for each additional 100 up to 1,000; $5.00 for each additional 1,000; minimum order $2.50. The paper used for reprints is similar to that used for inside pages of THE NORTHWESTERN MILLER. If better paper is desired, that similar to the cover of this publication can be had for 30c each hundred copies additional. Additional charges, at cost, will be made for articles exceeding one page in length, for reprints in pamphlet form, extra composition, etc. Each extra color 75% additional.

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Consultation and Research on
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WANT ADS

Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

HELP WANTED

OPENING IN OHIO FOR ASSISTANT TO feed plant superintendent, experienced with machinery and in handling men. Address 5538, The Northwestern Miller, Minneapolis, Minn.

MILLER WANTED — NIGHT MILLER wanted for 500-bbl Ohio mill; capable, industrious and interested in steady employment rather than wartime wages. Address 5537, The Northwestern Miller, Minneapolis, Minn.

SECOND MILLER FOR LARGE SPRING wheat and rye mill; prefer married man, not over 40. Give complete information as to age, experience, etc., also salary expected in first letter. Address 5502, The Northwestern Miller, Minneapolis, Minn.

WELL-KNOWN PROGRESSIVE CENTRAL States mill seeks aggressive representation on family and bakers flours in New York state, New England, eastern Pennsylvania, West Virginia and eastern Kentucky; co-operative policy and complete quality line, both spring and Kansas, offers splendid possibilities for volume producer. Address 5536, The Northwestern Miller, Minneapolis, Minn.

SITUATIONS WANTED

EXPERIENCED, WELL TRAINED YOUNG man wants work in any sized mill in Northwest; married, draft deferred, good health; good reason for changing; excellent references. Address 5539, The Northwestern Miller, Minneapolis, Minn.

WANTED—POSITION BY EXPERIENCED superintendent miller; uniform quality products guaranteed; age 53; capable any size plant; location of minor importance; executive ability; correspondence solicited. Address 5532, The Northwestern Miller, Minneapolis, Minn.

MILLS FOR SALE

FOR SALE—40-BBL DIESEL POWER flour mill with feed and corn meal units; coal yard. Russell's Mill, Bryan, Ohio.

FOR SALE—80-BBL FLOUR MILL, MAchinery complete; 100-h.p. Worthington diesel engine; all in good running condition. Address 5533, The Northwestern Miller, Minneapolis, Minn.

MACHINERY WANTED

WANTED—BRIGHTWOOD BOX MACHINE —Pneumatic scale packaging machine; two flour blenders. Address 4970, The Northwestern Miller, Minneapolis, Minn.

MILLS WANTED

WANTED—SMALL OR MEDIUM-SIZED hard wheat mill in Kansas, well located, with modern equipment. Give full particulars in answering and lowest cash price. Address 5540, The Northwestern Miller, 614 Board of Trade, Kansas City, Mo.

MACHINERY FOR SALE

ROLLER MILLS, REELS, SIFTERS, DUST collectors, fans, elevators, scourers, bran dusters, pulleys, percentage feeders, batch mixers. Schuchardt Bros., 1901 Second Street North, Minneapolis, Minn.

CUP ELEVATORS, DUST COLLECTORS, fans, separator with Shaler drive, electro spout magnet, Junior grade maker, Forster scourer, Shaler shaker drive, Hobart coffee mill with motor drive, automatic net weigher; above all new machinery, installed in 1936, used very little, in excellent condition. W. N. Clark Co., Rochester, N. Y.

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with Kansas mill, and also Spring Wheat Mill, for New Jersey territory. If at present represented, could work through another mill unit. Address 5534, Northwestern Miller, 23 Beaver St., New York City.

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L. R. JEWELL & SON—"Flourists"
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Strictly Flour Brokerage For Over 30 Years

PRESTON-SHAFFER MILLING CO.
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ESTABLISHED 1865
SOFT WHITE WINTER WHEAT FLOUR A SPECIALTY
Also Choice Blue-Stem and Hard Spring Patents
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General Offices: WALLA WALLA, WASHINGTON
Mills at Waitsburg, Washington, Freewater, Oregon, and Athena, Oregon—Daily Capacity, 3,000 Bbls
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Centennial Flouring Mills Co.
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SOFT WINTER WHEAT FLOURS
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Mills at Tacoma, Spokane, Reardan, Ritzville, Wenatchee, Wash., U. S. A.
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Policies of this Company are held by all leading millers
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SOUTHWEST ACCOUNTANTS HEAR STATEMENT ANALYSIS

The chief feature of the meeting of the southwestern group of the Flour Mill Accountants Association at Wichita, Kansas, March 21, was a paper, "An Analysis of Profit and Loss Statements," by H. S. Alexander, of the Kansas Flour Mills Co., Kansas City. Preliminary to his showing a hypothetical breakdown of a one-month profit and loss analysis of a flour mill, Mr. Alexander said:

"The accountant's work starts where the bookkeeper's stops. It is his job to explain, point out, warn, draw inferences, prognosticate. If he fails to do so he is shirking his duty. . . . Too often the bookkeeper, or so-called accountant, is prone to prepare his statements, slip them on a corner of the boss's desk while the boss is out, and then try to avoid answering questions. Generally this same fellow knows more about the details of the business than the executive could know." Mr. Alexander stated that the accountant has a definite responsibility to sell his knowledge of operations and operating results to the executive for his use in formulating administrative policies.

Summarizing his conclusions from the profit and loss statement, Mr. Alexander said:

"The conventional profit and loss statement reflecting sales, cost of sales, expenses and operating results means very little as a control for operations, as it fails to show any reasons for profit or losses. An analysis may serve as a guide to management by pointing out the various operations and their individual effect on the whole. . . . Some items are controllable and, by taking them one at a time, management may find some way to increase the profits and decrease the losses, or both."

The speaker pointed out that generally management is composed of sales-minded and sales-trained men, not accountants, who will admit that a bunch of figures mean little to them. They don't read statements well and need a word picture of operations presented for them to grasp the significance of results. "For this purpose we have found a letter describing operations to be of benefit to management," he said, stating that such a letter should include the whole story for the period, written in a simple manner as ready reference for management.

Chief accountants from 14 milling concerns in the Southwest attended the meeting. The next meeting will be held at Wichita April 18.

——BREAD IS THE STAFF OF LIFE——

OKLAHOMA GRAIN GROUP WILL MEET APRIL 9-10

OKLAHOMA CITY, OKLA.—The Oklahoma Co-operative Grain Dealers Association will hold its annual convention in Enid April 9-10. Among the speakers will be James Wells, Washington, D. C., special assistant to the secretary of agriculture, in charge of storage and transportation, and Howard Cowden, North Kansas City, Mo., president of the Consumers Co-operative Association. The grain survey based on personal visits to the various grain belts of the state usually presented by A. W. Erickson, Minneapolis, Minn., will be omitted from the program this year, because of the tire situation.

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A new development which greatly extends fermentation tolerance. Provides more time for "cutting over" or giving dough extra punches. If you want a flour which will stand abuse, write or wire
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FANCY SPRING PATENTS, CLEARS and WHOLE WHEAT FLOUR
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Wheat, Rye, Corn and Buckwheat Flours

Substitutes

(Continued from page 18.)

grow in great profusion, but are frequently found in deep jungle growths far away from any but the most primitive means of transportation. In wild form, the leaves also vary greatly in size and have sharp thorns which increase the difficulties of designing machinery for decorticating.

Although under normal condutions soft fibers would be used for bagging, it has been found that bags can be made of certain of the hard fibers found in Central and South America. For the purposes of this article, the fibers selected for discussion will be considered from the point of view of their utility in the manufacture of bags, twine and rope, and not according to their classification as hard or soft fibers.

There is little reason to anticipate an exportable surplus of fibers for bagging in the other American republics in the immediate future, so that discussion of the problem must be limited chiefly to the means of satisfying the domestic demand in these countries. In regard to materials for producing ropes, the position is different, and our neighbor republics may be considered as sources for a part of United States requirements, in substitution for nonhemisphere sources which are no longer available.

The other American republics need bags for use in connection with a large percentage of their agricultural crops. Some idea of the importance to those countries of Indian jute, the most widely used bagging material, may be gathered from the import and consumption statistics. In 1940 Chile imported 6,000,000 jute sacks and produced an additional 3,000,000 from imported jute fiber. Argentina uses an estimated 378,000,000 sacks a year; in 1940, 142,000,000 new sacks were imported or made in Argentina, representing about 29,000,000 lbs of jute. Brazil purchased about 48,000,000 lbs of jute in the same year and Peru about 25,000,000 lbs. Cuba will require an estimated 24,000,000 sacks during 1942.

Indian jute is grown largely in the fertile delta lands of Bengal and has achieved its ascendancy as the chief fiber for bagging on account of its low prices, its adaptability for spinning, and its fineness. Its chief disadvantage is that it deteriorates rapidly when it becomes damp and, in any case, soon becomes brittle. Although jute can be grown in various parts of this hemisphere, it is highly doubtful whether it could be produced to compete with Indian jute, which is grown under the combined advantages of the fertile alluvial soil of Bengal and the existence of abundant, cheap and efficient Indian labor.

In view of the dependence of the other American republics on jute bagging for their crops and of the uncertainties of the shipping situation, there has been a considerable amount of experimentation, both in growing jute itself and in collecting and growing native fibers. It is thought possible that jute could be grown in a number of countries, among them Cuba and Peru; it is at present being raised in small quantities in Argentina and Brazil.

The problem of finding a substitute for jute is two fold; not only must the fiber itself be suitable as a substitute but it is also highly desirable that it should be capable of being spun and woven with existing machinery. Although jute was originally imported in the form of finished bags, as industrialization progressed in the other American republics domestic production from imported materials soon began and later the actual spinning and weaving of imported jute fiber was undertaken domestically.

The new jute textile industry was protected in several of the republics by heavy tariffs and, as a result, imports of jute bags and jute cloth were reduced to a minimum. The existing machinery is designed for manufacture of jute and jute cloth primarily, and while small amounts of other fibers can be used in conjunction with jute, they cannot be used alone.

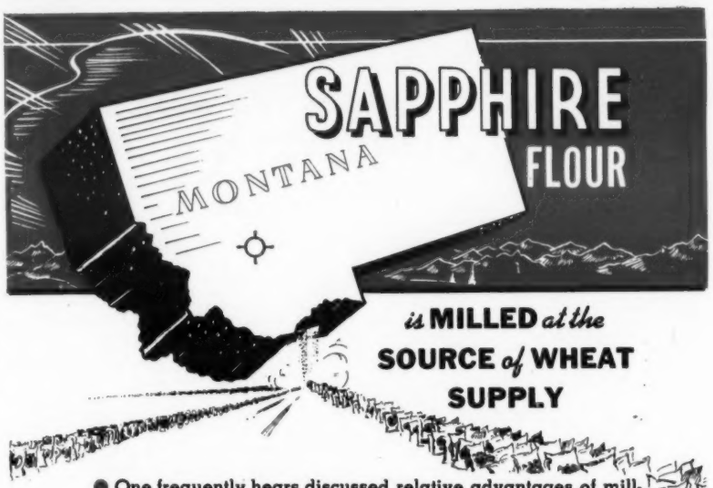
Brazil.—The problem of substitutes for jute has been given particular attention in Brazil. The main difficulty is that the so-called "semi-hard" native fibers cannot be produced economically, and the hard fibers cannot be spun and woven with existing machinery. There is also difficulty due to the lack of efficient machinery for decorticating. In addition, the uneven quality of the uncultivated fibers produces inferior results. Several native fibers have, however, been found suitable for mixing with jute, and a recent law requires that all jute bagging contain at least 10% of native fiber.

Among such fibers are guaxima, papoula de Sao Francisco, caroa and infuscata. Guaxima is stronger than jute, but papoula de Sao Francisco is the native fiber most frequently used for mixing with jute. It is cultivated in small quantities and mechanically harvested. Its suitability for use with jute is due to the fact that it is a soft fiber very much like jute and having the same strength and elasticity. It can be processed with the existing machinery for jute weaving. Infuscata is a hard fiber but it is somewhat like jute, and is adaptable to mechanical cultivation and decortication by machines similar to those used for sisal. The plant produces fiber after a year with a very high yield per acre. Caroa is second in popularity after papoula de Sao Francisco for mixing with jute. It is, however, a hard fiber, which by itself is too heavy for bagging.

As yet caroa is the only native fiber which is used in substantial quantities. The law requiring that 10% of native fibers must be mixed with jute will undoubtedly lead to greater production of native fibers. Up to the present, however, the various jute substitutes are regarded as strictly war time products.

Ecuador.—Ecuador has a native plant which produces a hard fiber called cabuya. This fiber is used by the natives for making bags, ropes, belts and soles for rope sandals. With the exception of a few small factories which are devoted to production of articles from cabuya, the industry is carried on almost exclusively by the Indians. In the highland regions cabuya bags are used for produce, while the coffee and cacao of the coastal areas are shipped in jute bags. Although there are no accurate estimates of production possibilities, it is thought that the industry may be very considerably increased if it becomes impossible to obtain sufficient quantities of jute.

Colombia.—Two hard fibers in Colombia have become important as substitutes for jute and sisal. Considerable sums of



is MILLED *at the* SOURCE *of* WHEAT SUPPLY

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- In connection with this there is one very vital point. Mills located in the heart of wheat production have first call on virgin country run wheat—that is, never passed thru a terminal market.
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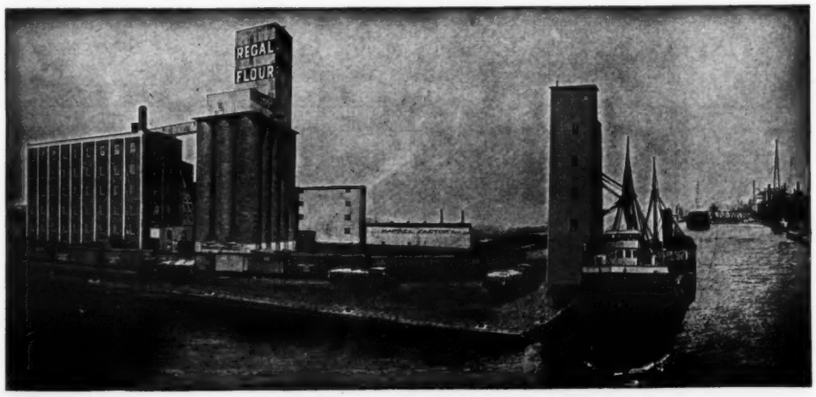

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MONTREAL - TORONTO - WINNIPEG

• ON RECRUIT STAFF •

Lorne Munion, former bookkeeper in the Winnipeg, Man., office of Western Canada Flour Mills Co., Ltd., enlisted in the army early in 1941 and was placed on the staff at the recruiting center, Win-

money have been spent on the cultivation of pita, although as yet no satisfactory machine for decortication has been invented. More important, however, is the hard fiber fique, which is now used almost exclusively for coffee bags. The use of this fiber is a comparatively recent development and some imports of jute are still necessary. But the government has become interested in fique production, and legislation to assist the industry through financial and technical aid is under consideration.

Uruguay.—In Uruguay the cáñamo is the only suitable native plant grown on a commercial scale. It is stronger than jute and produces material of higher quality when woven. It is, however, more expensive than jute, and is as yet produced only on a small scale.

Peru.—The government has been investigating the possibilities of raising jute and hemp in Peru. Experiments with hemp seed have been successful, but there has been considerable difficulty in obtaining sufficient seed. In addition, the preparation, spinning and weaving of hemp involve considerable expenditure for machinery, and investors are hesitant to purchase this equipment on account of the uncertainty as to whether the industry will be able to compete with other hemp producing areas after the war.

Argentina.—Large scale hemp cultivation is being contemplated. Due to rising world prices hemp can now be grown economically, but production is still in the experimental stage. After several years of acclimating Indian jute seeds, cultivation has been commenced on a small scale. All phases of production, with the exception of retting, are to be mechanized in order to bring the price closer to that of Indian jute. A native plant called rosella also is being cultivated as a possible substitute for jute.

The difficulty of obtaining jute has produced an acute crisis in Argentina on account of its large annual requirements of bags. Second-hand bags have risen sharply in price. The government recently commandeered all used sacks and took over the function of distributing and fixing prices of the available supply. Finally it also took possession of all jute entering the country.

Furthermore, it recently authorized the expenditure of 10,000,000 pesos ($3,000,000) for the construction of a factory to make cotton bags for flour, sugar, raw cotton, potatoes and other crops. The new factory will fulfill the dual purpose of providing bags and absorbing the excess cotton crop. The factory is to have an output of 30,000,000 bags annually and will use 50,000 bales of cotton (the average annual 1936-40 crop was 289,000 bales). Production, however, is not expected to commence until the middle of 1943.

An alternate plan which may be brought into operation, if the necessary machinery cannot be obtained abroad, provides for the establishment of a hand-weaving industry in the northern provinces. A corporation established by the government would hire weavers, supply looms and yarn, and sell cloth for manufacture into bags.

Chile.—Chile is the only country among our neighbor republics which produces substantial quantities of hemp, one of the oldest fibers. Hemp was in use before both abaca and sisal for making rope, and before jute for making bags. Hemp is a soft fiber, but is employed chiefly for the manufacture of twine and cordage.

While hemp is very durable and does not rot in water, as does jute, it is not sufficiently pliable or elastic to be an ideal material for bagging. Also, it cannot compete with jute in price. Thus, while it would be possible to expand the production of hemp in Chile, such expansion probably would be only for the duration of the war, since Indian jute no doubt will return to the market for bagging after the war. The same probably will hold true for Jugoslav and Italian hemp for twine and cordage, although it is possible production costs may be sufficiently lowered through the introduction of machinery to enable Chilean hemp to compete with European sources.

The production of hemp in Chile is favored by the fertility of the soil, good climate, and the convenient location of railways and other transportation facilities. Difficulties in retting and preparing the fiber are being overcome through the establishment of central stations for these operations. About half of the national production is exported, chiefly (in prewar years) to Great Britain, Argentina and Germany. In recent years Argentine purchases have declined due to increased hemp production at home, and British purchases have increased. Exports for 1940 amounted to approximately 4,000 metric tons. Exports of jute are controlled by the government, both as regards price and quantity.

—BREAD IS THE STAFF OF LIFE—

SUPER BUYS OAKLAND PROPERTY

Hagstrom Food Stores, Inc., has purchased for $250,000 the automobile agency property of the Chester N. Weaver Co., Oakland, Cal. E. A. Hagstrom, president of the chain, announces that the property will be remodeled immediately to house a modern super market and to serve as operating headquarters for the company's stores in the metropolitan Oakland area. Present headquarters at 105th Avenue and East Fourteenth Street will be vacated.

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GRIST FOR THE GRINS

POOR PADDY

An Irishman was brought before the court charged with marrying six wives. The judge asked him how he could be so hardened a criminal. "Please, your worship," said Paddy, "I was just trying to get a good one."

WORSE

Father.—I'm afraid your young man is living beyond his means.

Daughter.—Oh, no, daddy. He hasn't any.—*Atlanta Two Bells.*

THIN EXCUSE

Diner.—The soup's very thin, waiter.

Waiter.—Yes, sir. The manager likes the people to admire the design on the plate.—*Exchange.*

JOKE

"Well," said the egg in the monastery, "out of the frying pan into the friar!"

THE ANSWER

"What's the smallest book in the world?"

"Who's Who in Germany."

SPEAKING OF THE SCOTCH

"Who's that man running up and down the car with his mouth open?"

"That's a Scotchman getting a free smoke."

STILL INDIVIDUALISTS

A friend of ours in the Defense-Housing Registry at Washington is pretty busy these days trying to find rooms for the hundreds of new government employees arriving daily.

Recently this inspector, looking over a proposed property, asked the landlady, "How many share the bath?"

"Well," admitted the prospective recipient of government bounty, "things are a mite crowded—but we still take our baths separately."—*Quote.*

SECRET SERVICE

"Jane told me you told her that bit of gossip I told you not to tell anybody."

"I'll tell her off! I told her not to tell you I told."

"Well, I told her I wouldn't tell you she told me so don't tell her I told you!"

BALD FACTS

Irishman (to bald-headed Scotchman).—Why don't you buy a toupee?

B. H. Scotchman.—I'm waiting for a windy day.

TRAGEDY IN TWO ACTS

He.—Let's get married.

She.—All right.

(Long silence.)

She.—Why don't you say something?

He.—I've said too much already.

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Pfeffer Milling Company
Manufacturers of Pure High-Grade Winter Wheat Flour
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Crawford & Law, Glasgow, Scotland. 47
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Hunter Milling Co., Wellington, Kansas. 30

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K
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Kelly Flour Co., Chicago, Ill. 47
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Knighton, Samuel, & Sons, Inc., New York, N. Y. 47
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Mid-West Laboratories Co., Columbus, Ohio 8a
Mill Mutual Fire Prevention Bureau, Chicago 20a
Miner-Hilliard Milling Co., Wilkes-Barre, Pa. 40
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Monsanto Chemical Co., St. Louis, Mo.. 7a
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Whitewater Flour Mills Co., Whitewater, Kansas 22
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Z
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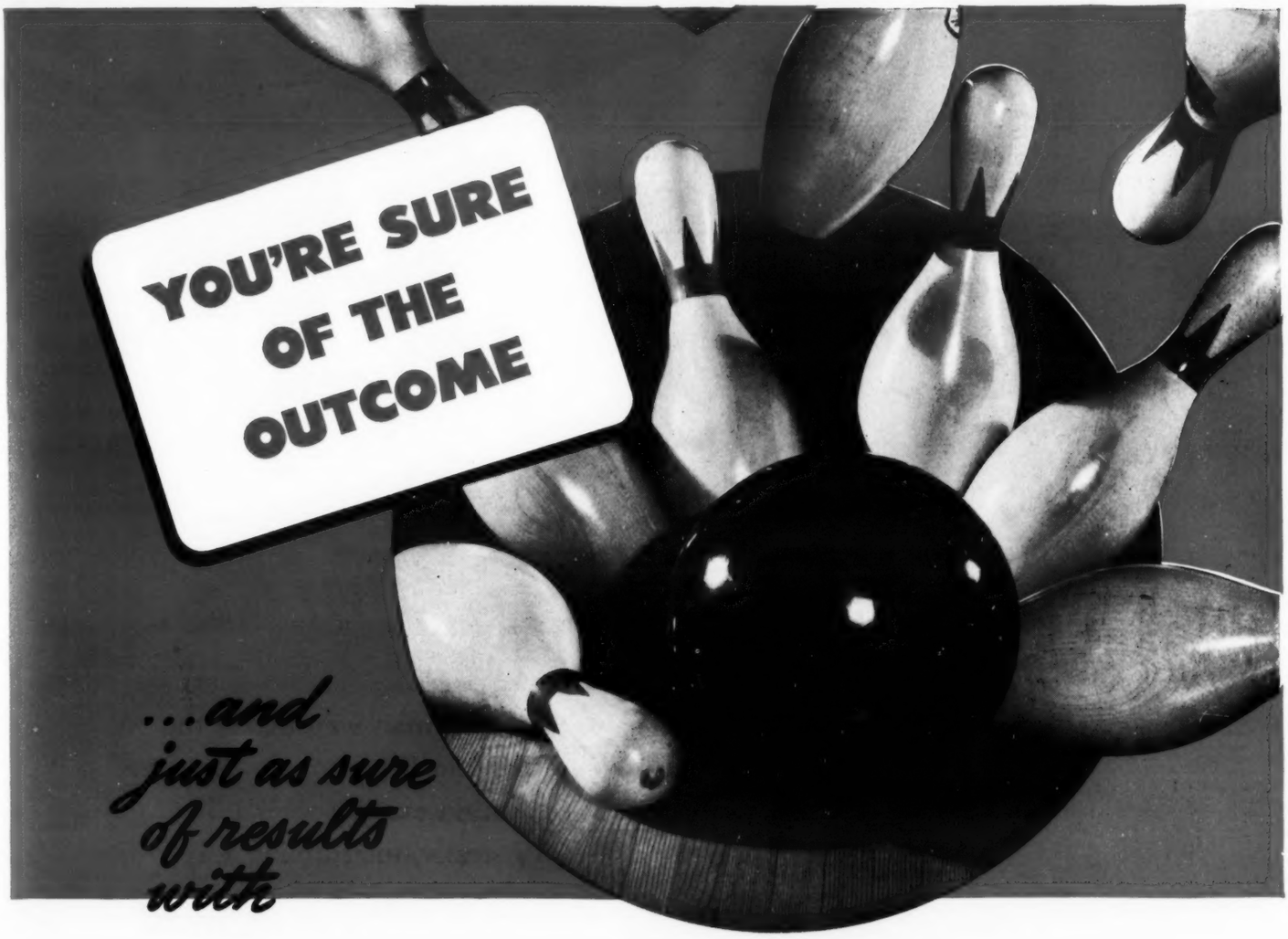

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NA-82

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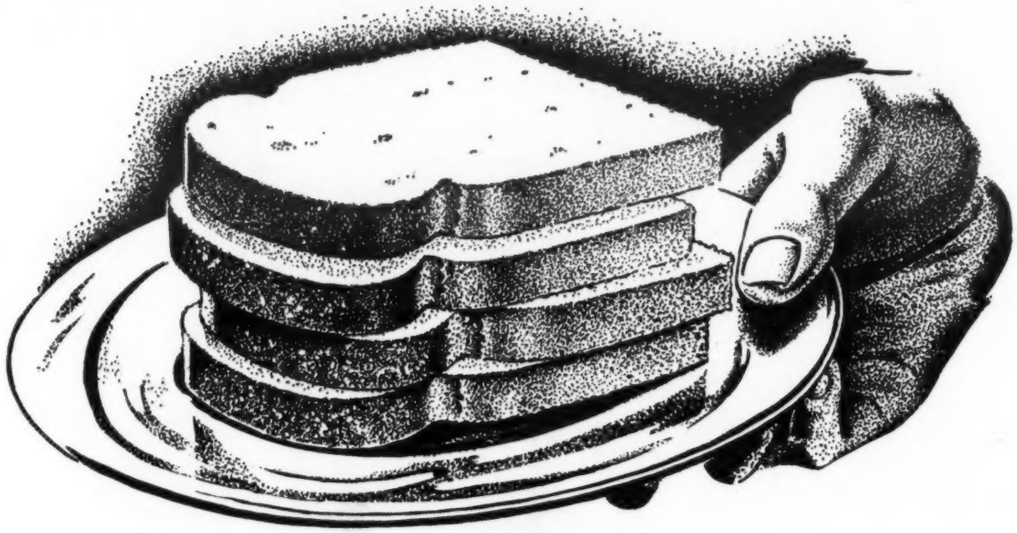

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★ It's *food* that helps to make the man who makes the weapons which equip our Army and Navy to win the war. And today's bread, the basic food in every worker's diet, is helping more than ever in its steady, unassuming way to win today's gigantic battles of production—because much of today's bread is enriched with thiamine, niacin and iron.

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MINNEAPOLIS, MINNESOTA

This advertisement appears in the Journal of the American Medical Association.